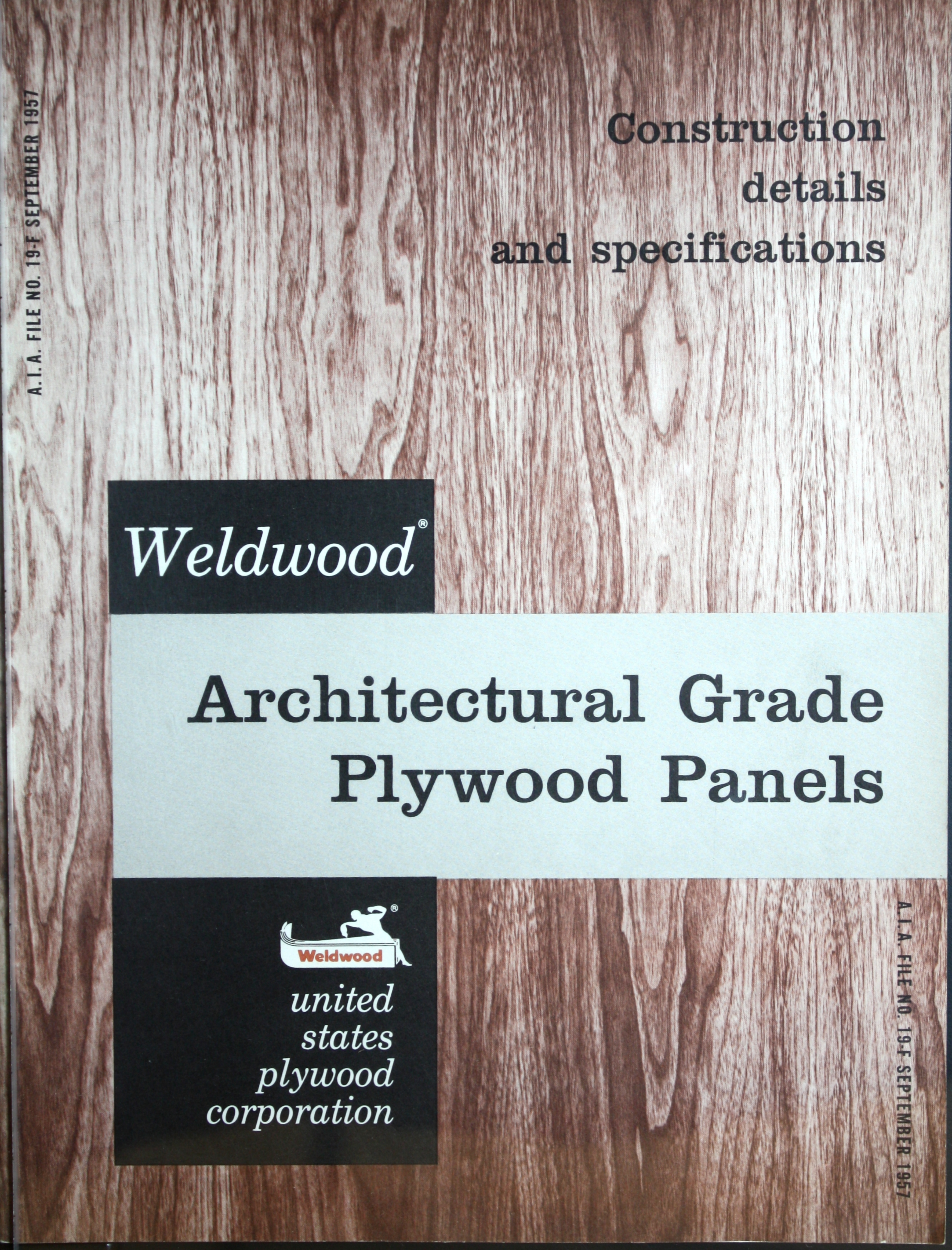

A.I.A. FILE NO. 19-F SEPTEMBER 1957

Construction
details
and specifications

Weldwood®

Architectural Grade Plywood Panels

Weldwood®

united
states
plywood
corporation

A.I.A. FILE NO. 19-F SEPTEMBER 1957

construction details and specifications

FOR ARCHITECTS:

A Few Words of Explanation

This handbook has been prepared to provide architects and others with information relative to designing interiors using thicker panels of Weldwood® Plywood.

The details shown reflect standard procedures as used by cabinet shops and woodworking firms in producing fine installations.

The type of work outlined is not an exact science, since different woodworkers have their own special methods of achieving both standard and unusual effects. However, we have included the major points of general agreement as a guide for your convenience.

We hope you will find this handbook of value and that you will feel free to call on our Architects' Service Department for any additional information.

Guarantee

Weldwood Plywood for interior use is unqualifiedly guaranteed for the life of any building in which it is installed.

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PLYWOOD FOR ARCHITECTURAL INSTALLATIONS

United States Plywood Corporation offers the architect a great many varieties of plywood in many sizes and constructions. Briefly, the different classifications of decorative hardwoods are:

1. Algoma grade plywood – In thicknesses of 1/8", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" in veneer construction and 3/4" thick lumber core construction. This is our top grade stock hardwood panel.

2. Architectural plywood – sequence matched sets and custom made panels. These are of similar Algoma quality, but with the added advantages shown below.

This handbook will concern itself with the thicker panels, the three types listed below. For information on the other thicknesses and grades consult page number 39 of this handbook and the "Weldwood Catalog" which contains a listing of plywood products manufactured and distributed by United States Plywood Corporation. For installation data on the 1/4" thick grades write for the "Weldwood Plywood for Interiors – Installation Booklet".

A. Architectural Sequence Matched Sets

(3/4" thick Algoma grade lumber core construction)

These sets are carried in stock in approximately 12 different woods as follows:

Quartered Sliced Figured Mahogany
Mottled Mahogany
Mottled Figured Mahogany
Figured Mahogany
Prima Vera
Korina®

American Cherry
Figured Walnut
Plain Sliced Walnut
Quartered Walnut
Brazilian Rosewood
Teakwood

These panels vary from the stock Algoma grade in that they are faced with specially selected veneers which reflect unusual character and quality. The faces and crossbands of these panels are bonded with phenol formaldehyde waterproof resin glue. The sizes usually made are 4′ widths and 6′, 7′, 8′, 9′, 10′, 11′ and 12′ lengths depending upon the lengths of veneer available. Sets normally consist of between 10 and 30 matched and numbered panels.

Surplus length of veneers are frequently made into companion counterfront pieces.

Something new expected to fulfill a long-felt need

1. Fireproof core construction — Also carried in stock are some 48" x 96" and 48" x 120" matched sets with fireproof core construction for use where local building codes demand this type construction. These come in such woods as Birch, Plain Sliced Walnut, Quartered Walnut, Mahogany, Rift Oak and Figured Korina in either veneer or lumber core construction.

B. Algoma Grade, Stock ¾" Thick Lumber Core Plywood

The sizes carried in stock are 36" and 48" widths by 60", 72", 84", 96", 120" and up to 192" lengths, and panels can be obtained in many different woods. The smaller sizes of panels are always available at substantial saving and should be used where possible. In Walnut and Korina, sequence-matched, numbered panels are kept in stock.

Counterfronts are available in this grade with sizes ranging from 144" x 28", 144" x 36", 144" x 42" and 144" x 48". Counterfronts also come in veneer core construction in sizes 96" x 48" and 120" x 48".

It is common
practice to
indicate
height and
grain direction
in the second
dimension:
Example:
48" x 96"-a
panel 96" high
vertical grain

C. Architectural Blueprint-Matched Custom Built Panels

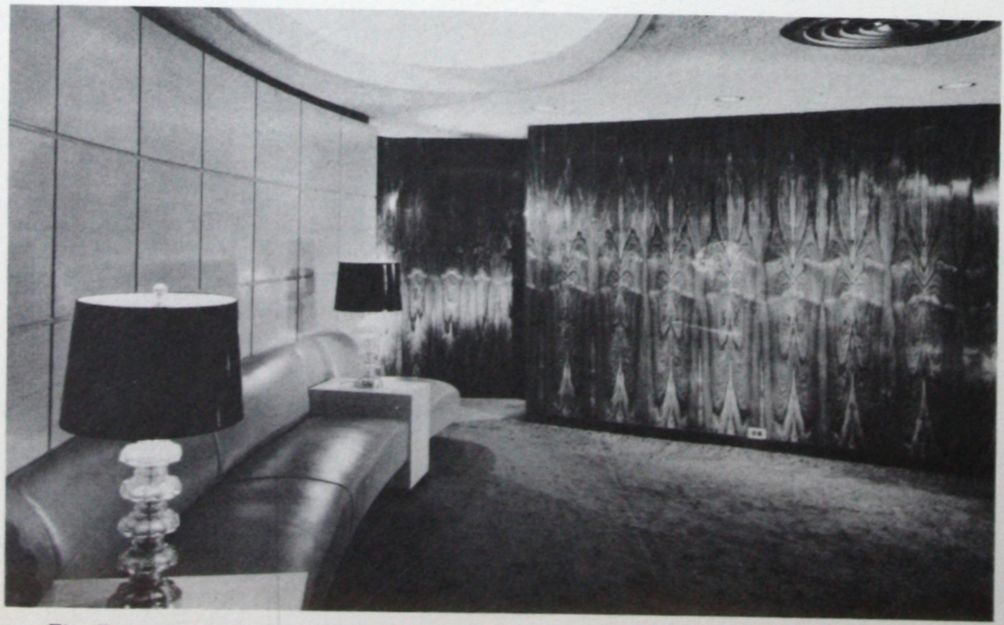
The construction employed is the same as the architectural sequence matched sets, but in custom work the architect selects the veneer flitch and the panels will be manufactured to the sizes he desires, the only limitations being those imposed by the lengths and widths of the particular veneer selected. This type of "to order" panel naturally is somewhat more costly due to production cost and veneer loss. Time, depending on circumstances, must be allowed in which to make veneer selection and have this veneer manufactured into plywood (refer to "Veneer Chart" pages 8 and 9).

In selecting veneers for Custom Built Architectural plywood the architect makes his final choice from 'live' flitch samples. Flitch samples are pieces of veneer taken out of a sliced log so that the exact graining and pattern of the log may be observed.

D. Architectural Sequence-Matched Panels

Where panels are all produced to the same length and width for fitting on the job, they are indicated as Architectural Sequence-Matched Panels. Doors are faced with veneers from the same flitch, as is clearly illustrated on page 38, "Teak Weldwood in the Board of Directors Room, Occidental Life Insurance Co."

This is a most economical way of using exotic veneers. Either V-joint, recessed-joint or batten strip is needed with the ⅜-inch, 5 ply plywood panels.



The Rosewood Ballroom Reception Room
(Arthur Murray)
East 43rd St., New York City
Architect: Morris Lapidus
General Contractor & Millworker:
M. Gerber Construction Co., Inc.

TYPES OF VENEER CUTS

The manner in which veneers are cut is an important factor in producing the various visual effects obtained. Two woods of the same species, but with their veneers cut differently, will have entirely different visual character even though their color values are similar.

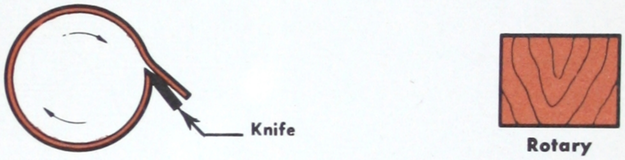
In plywood manufacture, six principal methods of cutting veneers are used, depending on the type of veneer required, (whether for face, crossband, or core) the nature of the log and the veneer figure desired. Primarily the veneer slicer and veneer lathe are the equipment employed. The six methods are:

Rotary cut veneers cannot be sequence matched

1. **Rotary cutting**
2. **Plain or flat slicing**
3. **Quartered slicing**
4. **Half-round slicing**
5. **Back-cut**
6. **Rift-cut**

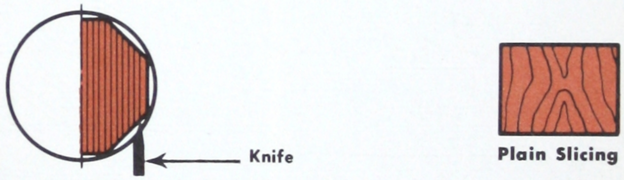
Rotary

The log is mounted centrally in the lathe and turned against a razor sharp blade, like unwinding a roll of paper. Since this cut follows the log's annular growth rings a bold variegated grain marking is produced. Rotary cut veneer is exceptionally wide.



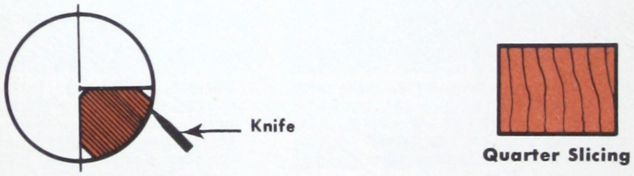
Plain Slicing (or flat slicing)

The half log, or flitch, is mounted with the heart side flat against the guide plate of the slicer and the slicing is done parallel to a line through the center of the log. This produces a variegated figure.



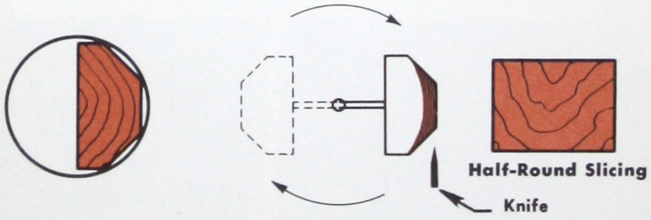
Quarter Slicing

The quarter log or flitch is mounted on the guide plate so that the growth rings of the log strike the knife at approximately right angles, producing a series of stripes, straight in some woods, varied in others.



Half-Round Slicing

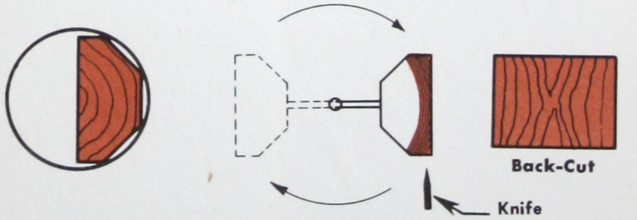
A variation of rotary cutting in which segments or flitches of the log are mounted off center in the lathe. This results in a cut slightly across the annular growth rings, and visually shows modified characteristics of both rotary and plain sliced veneers.



For the really unusual, specify Architectural Grade

Back-Cut

The flitch is mounted as in half-round cutting except that the bark side faces in towards the lathe center. The veneers so cut are characterized by an enhanced striped figure and the inclusion of sapwood along the edges.



Rift-Cut

Rift cut veneer is produced in the various species of Oak. Oak has medullary ray cells which radiate from the center of the log like the curved spokes of a wheel. The rift or comb grain effect is obtained by cutting perpendicularly to these medullary rays either on the lathe or slicer.

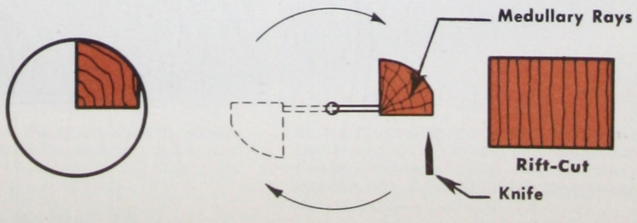
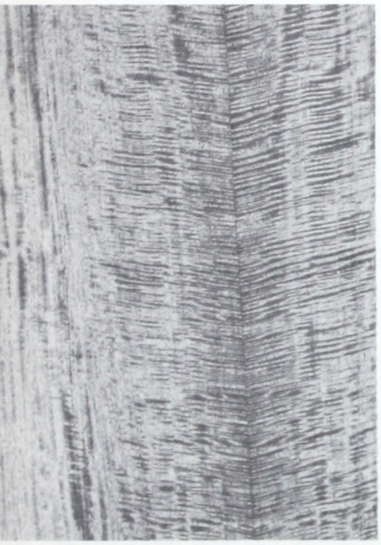
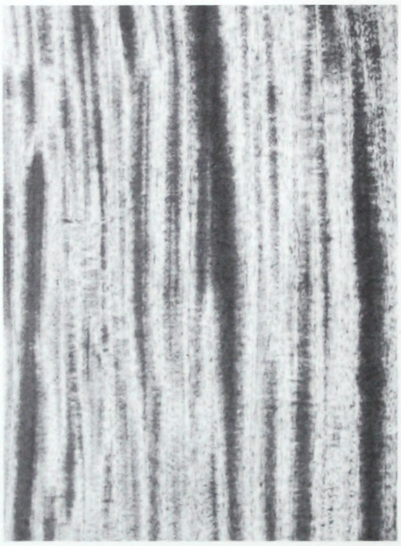


FIGURE CHARACTERISTICS OF VENEERS

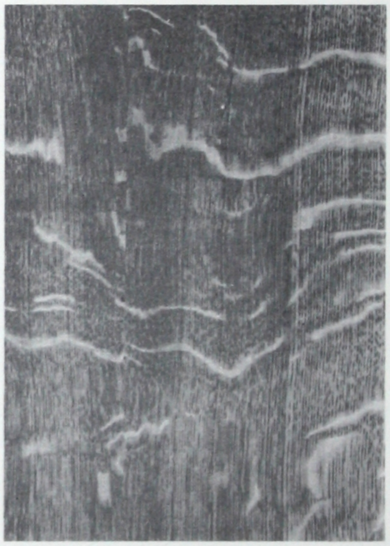
The grain pattern and figure on the face of the veneer are of the utmost importance to the designer and architect, since the whole character of the completed installation may be determined by the choice of veneer to be used. Veneer men, in discussing figure in the wood, usually describe the characteristics of that figure by saying it "has a great deal of crossfire", or "has a straight or broken stripe" or is "highly figured". It should be borne in mind that "figure" refers to the highlights or crossfire running at right angles to the grain direction, whereas the grain character and direction would be described by using the word "pattern". The photographs below illustrate some of the most commonly used veneer terms.



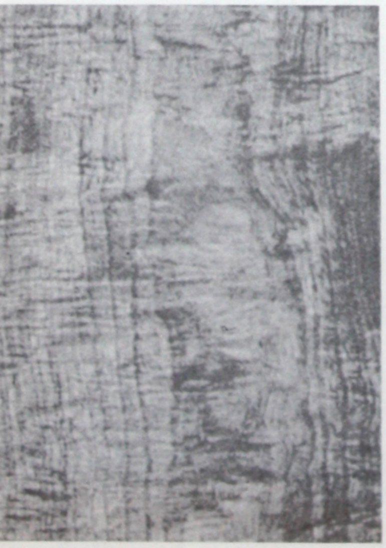
Fiddle-Back—A fine, even, ripple or wave figure running at right angles to the grain direction of the veneer, and frequently seen on the backs of violins. It is found principally in Mahogany and Maple.



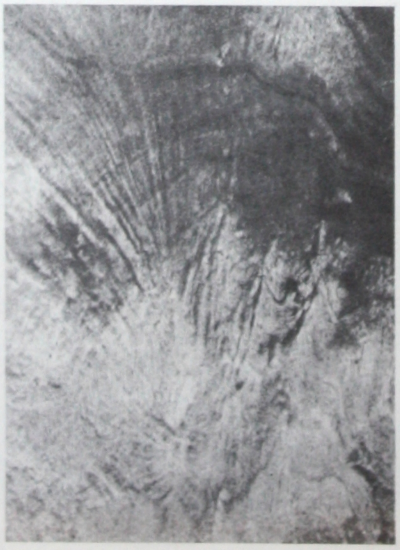
Ribbon Stripe—A wide unbroken striped effect, consisting of alternate light and dark strips, principally found in Mahogany produced by quarter slicing a log from a tropical tree with interwoven grain.



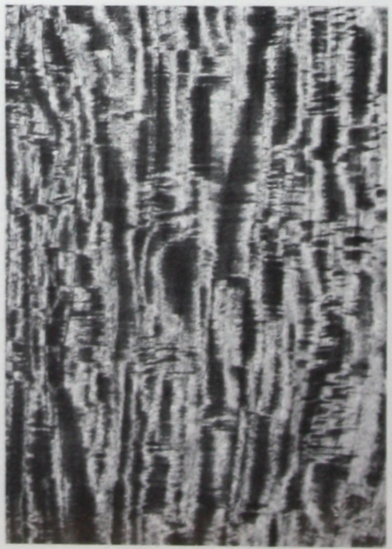
Flaked—A characteristic of Quartered Oak (formed by cutting across large medullary rays) and appearing as a highlight extending generally across the grain of the wood. Sometimes a breaking or loosening of the flake occurs, known as "broken-flaked."



Cross-Fire—An uneven undulation or corrugation pattern running transverse to the grain direction which appears as a highlight on the veneer.



Swirl—Irregular grain usually surrounding knots or crotches.



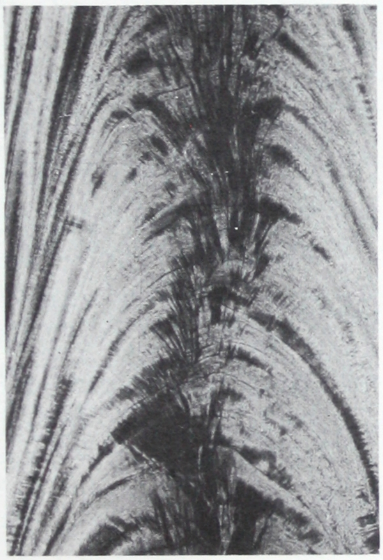
Mottle—Consists primarily of short, irregular, wavy surface fibres across the face of the panel. This gives a mottled look to the surface configuration.

HOW VENEER FIGURES ARE ACHIEVED

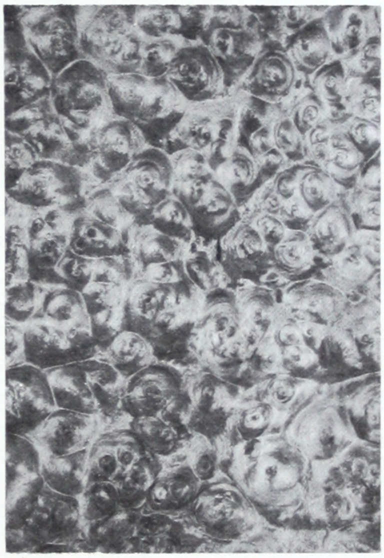
The marking or pattern in a piece of veneer is the result of tree growth. Quartered veneer shows a stripe produced by the light and dark color of Spring and Summer wood – the annular growth rings.

Spring wood is light in color (most pronounced in wood like Walnut), and the Summer wood is dark. In quartered veneer a striped effect naturally results from cutting at right angles to the growth rings. In flat-cut, half-round or rotary veneers, the variegated pattern is influenced by the angle at which the knife passes through the growth rings.

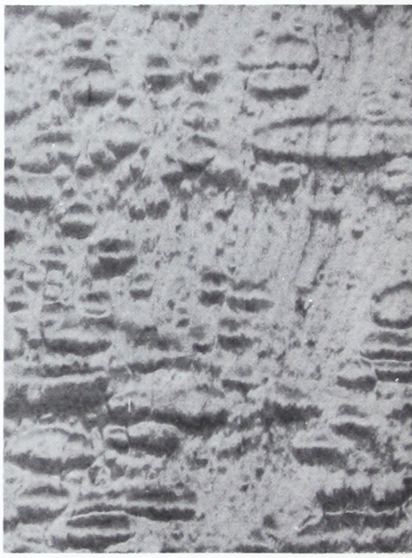
In tropical woods the demarcation of Spring and Summer wood may be scarcely noticeable because the tree growth is practically continuous.



Crotch—A veneer cut from the crotch or fork where two large branches of a tree unite. The resulting figure is usually curly and flowery and sometimes resembles a well formed feather in appearance.

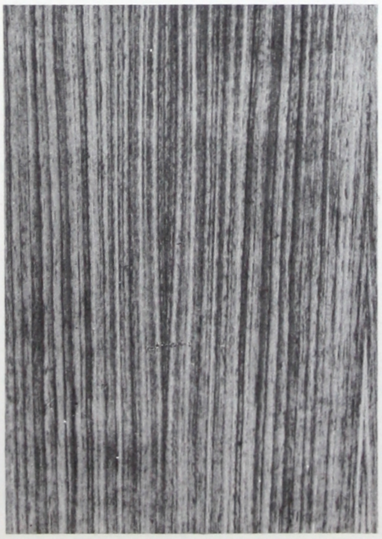


Burl—A type of figure produced by cutting through wart-like protuberances on trees. They contain the dark pith centers of a large number of undeveloped buds, which appear as little "eyes" or knots on the face of the veneer.

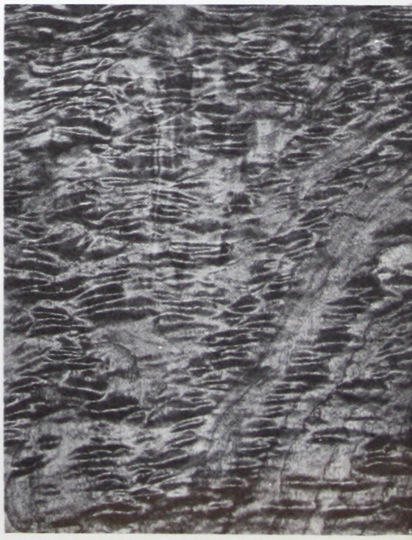


Blistered—Veneer appears to be blistered, due to seemingly knoll-like elevations in the wood. This is due to an uneven contour of the annual ring growth. Sometimes this is called "quilted figure."

This beautiful wall is paneled with Burmese Teak Weldwood Plywood . . . selected veneers book matched and sequence matched to give a repeated grain figuring to wall and doors. Blue Bonnet Room, Statler-Hilton Hotel, Dallas, Texas. Architect: William Tabler. Designer: H. Stojowski. Installer: Storecrafters.



Pencil Stripe—Similar to ribbon stripe, except that the alternate light and dark strips are narrower in width. An example of this is Walnut.



Stump (sometimes called Butt)—Veneers that are cut from the sound roots at the base of the tree, and having a rich, curly figure resulting from the intertwining of the root fibres.

CHART OF VENEER

There are at least 200 different woods in general commercial use.

Veneer	*Texture*	*Color*
Avodire	Medium hard	Light yellow
Avodire, Figured	Medium hard	Light yellow
Benge	Hard	Rich brown with tan and darker brown markings.
Birch, Select Red	Very hard	Light to dark brown or reddish-brown
Bubinga	Hard	Pale to deep flesh with thin purple lines
Butternut	Soft	Pale brown
Cherry, American	Medium	Light to dark reddish-brown
Elm, Quartered American	Medium	Light brownish red with dark brown ring marks
Gum, Figured Red	Heavy and strong	Pink to reddish-brown
Harewood, Grey	Medium hard	Silver grey (dyed) or cream to white (undyed)
Korina, Figured	Medium	Golden blond
Lacewood	Soft to medium	Pink to light leather brown
Macassar Ebony	Hard	Rich black-brown with tan, orange or yellow markings
Mahogany, Figured Quartered	Medium	Red to red brown
Mahogany, Honduras	Medium	Yellowish-white, salmon pink to rich golden brown
Mahogany, Mottled	Medium	Salmon pink to rich golden brown
Mahogany, Mottled Figured	Medium	Red to red brown
Mahogany, Philippine	Soft	Pale pinkish yellow to dark reddish-brown
Mahogany, Ribbon Striped	Medium	Red to red brown
Makore (African cherry)	Fine—smooth surface	Pale pinkish brown to dark reddish or purplish brown
Maple, Figured Quartered	Very hard	White
Oak	Hard	Red or white
Oak, English Pollard	Medium hard	Nut brown to deep brown with black spots
Orientalwood, Figured	Hard	Brown to gray—may have pink streaks or all over pinkish cast
Paldao	Hard	Variable tan background with black to brown streaks
Prima Vera, Figured	Medium	Yellow white
Rosewood, Brazilian	Hard	Dark red
Rosewood, East Indian	Hard	Straw to dark red
Sapeli	Medium hard	Medium to dark brown
Satinwood, East Indian	Hard	Light yellow
Teak, Plain and Figured	Medium hard	Golden brown
Walnut, Claro	Medium	Light to rich brown
Walnut, French	Soft	Grey
Walnut, Figured	Hard	Brown
Walnut, Flat Sliced	Hard	Brown
Walnut, Quartered	Hard	Brown
Zebrawood	Hard	Alternating stripes of dark brown and tan

CHARACTERISTICS

We list some of the more important.

Figure	*Origin*	*Veneer Length Range*	*Remarks*
trong, broken rope	Africa	Long	
trong with heavy crossfire	Africa	Long	Carries heavy figure
trong, contrasting	Africa	Medium long	Has brilliant stripe sometimes medium figure.
lain	U. S. A.	Medium long	Can get curly in qtd. and flat sliced
traight or broken stripe, mottle r shell	Africa	Long	Rare color—straight narrow lines
atiny—resembles grain of merican walnut	U. S. A.	Medium long	Scarce
aries from plain to rich mottle	U. S. A.	Rotary cut—short, plain or quarter sliced—medium long	A few burls, crotches, and swirls
trong	U. S. A.	Long	Northern Elm has finer, more uniform texture than Southern Elm
Vild with pleasing color contrast	U. S. A.	Short	Ribbon stripe obtained by quartering
lain, curly, fiddleback, finger oll with heavy crossfire	England	Medium long	May be successfully dyed
tripe and crossfire	Belgian Congo	Long	Rich satin-like wood available in good length, width and uniform color
mall to large flake	Australia	Long	Uniform color
ontrasting stripes	Dutch East Indies	Medium	Heavy dense wood
triped with some crossfire	Africa	Long	Great variety of figure including crotch
traight grained moderate crossfire o rich mottle	Central & South America	Long	Flat sliced—good widths and lengths
roken and crossfire	Africa & Cen. America	Long	
roken stripe and crossfire	Africa	Long	Great variety of figure including crotch
lain	Philippines	Long	Good lengths and widths
Vide stripe	Africa	Long	Great variety of figure including crotch
lain—sometimes mottled	Africa	Long	
Aild	U. S. A.	Medium long	Obtainable in sliced and rotary
lain	U. S. A.	Rotary or half round white—short other cuts—long	Has prominent medullary rays, rift cut to give comb grain
Plain or streaked with flake, ortoise shell	England	Medium	
trong, distinctive figure. Stripe	Australia	Long	Brilliant clear stripe sometimes has pronounced crossfire
tripe and mottle	Philippines	Long	Some crotches
tripe and crossfire	Central America	Medium	Rich, satin-like wood
ligh flower, dark and light	Brazil	Long	Often cut rotary or half-round, producing beautiful effects
tripe	East Indies	Long	Often cut rotary or half-round, producing beautiful effects
Pronounced stripe	Africa	Long	
tripe and flower	East Indies	Medium long	The true satinwood
lain, ripple, mottle	India	Long	Durable, strong, moderate weight, easy to work
Vide black banding, plain nottle, wavy	U. S. A.	Short	Crotches, veneers may carry yellow sapwood
ine, smooth grain	France	Short	Specially beautiful burls
lighly varied	U. S. A.	Medium	Known as high class cabinet wood with beautiful finishing qualities
lighly varied	U. S. A.	Medium	
lighly varied	U. S. A.	Medium	
tripe	Africa	Long	Rich color, straight stripe, and delicate markings

VENEER MATCHING

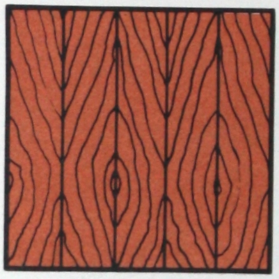
As a log segment is cut, the series of resulting veneer sheets is called a flitch. All the veneers in this flitch are kept in sequence as they come off the cutting lathe or slicer, so that they may be matched and joined to make panel faces.

The joining of the veneers is accomplished by means of a "tapeless splicer" which glues the long edges of the veneers together in whatever pattern is to be used.

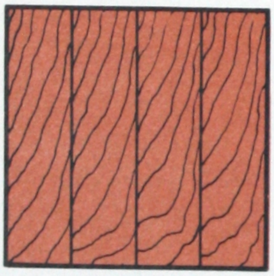
There are at least ten standard matching patterns possible, but due to the greatly curtailed panel yield per flitch, increased labor involved, and generally more exacting original veneer selection, only the book and slip matching are normally employed — the other methods being custom to order.

Book Match

All types of veneers are used. In book matching, every other sheet is turned over just as are the leaves of a book. Thus, the back of one veneer meets the front of the adjacent veneer, producing a matching joint design. Panels are made up of an uneven number of flitches in this type of matching.



Called center match when two flitches make a panel, joint falling in the center

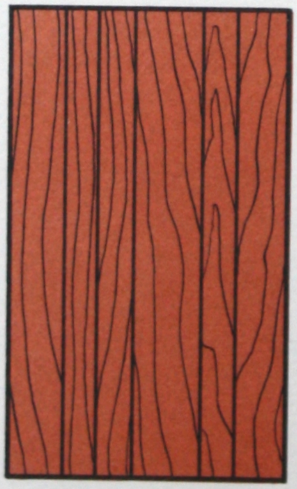


Slip Match

In slip matching, veneer sheets are joined side by side and convey a sense of repeating the flitch figure. All types of veneer may be used, but this type of matching is most common in quarter-sliced veneers.

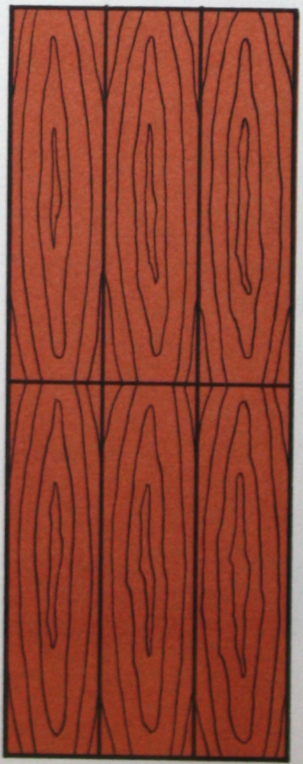
Random Match

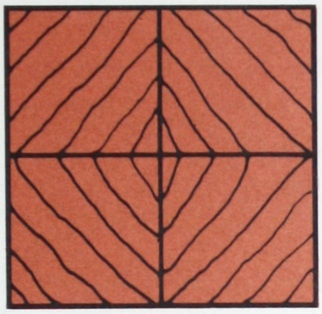
Veneers are joined with the intention of creating a casual unmatched effect. Veneers from several logs may be used in the manufacture of a set of panels.



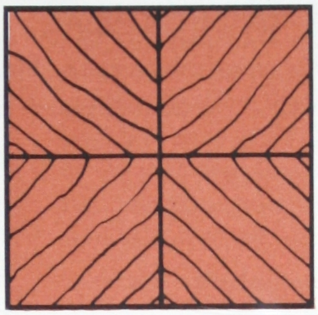
Vertical Butt and Horizontal Bookleaf Match

Where the height of a flitch does not permit its fabrication into the desired height of panel, it may be matched vertically as well as horizontally.

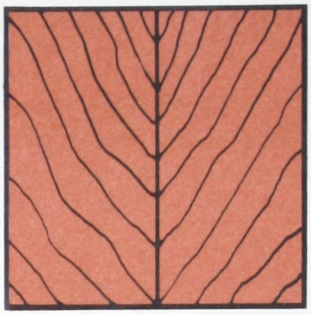




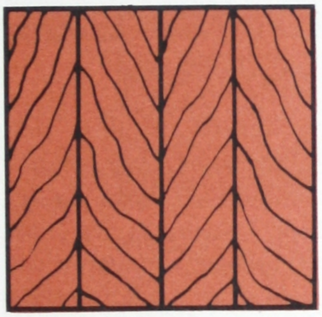
Diamond



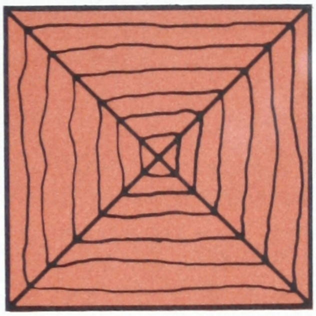
Reverse Diamond



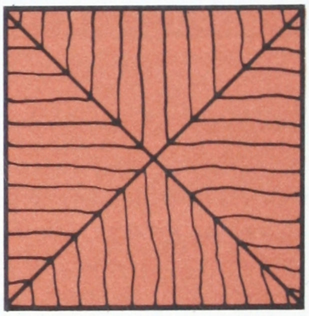
"V"



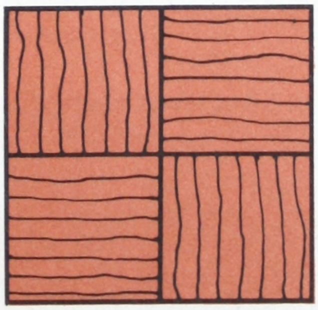
Herringbone



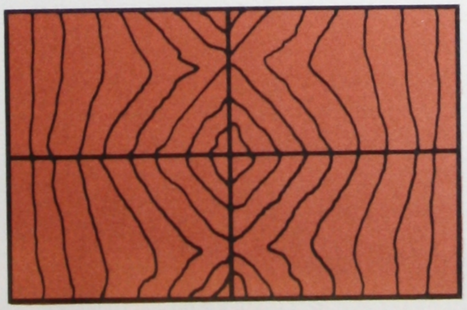
Box



Reverse Box



Checkerboard



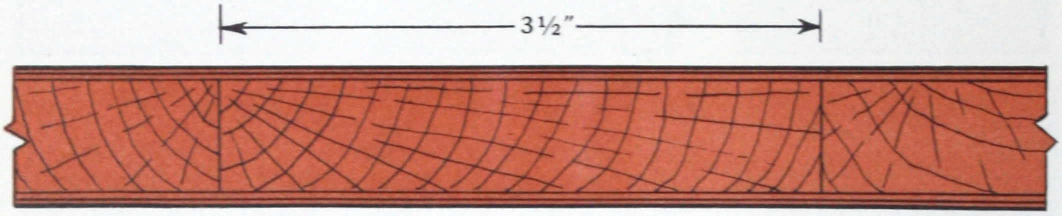
Four-way Center and Butt

This type of match is ordinarily applied to Butt, Crotch or Stump veneers, since it is the most effective way of revealing the beauty of their configurations. Occasionally flat cut veneers are matched in this manner where panel length requirements exceed the length of available veneers.

PANEL CONSTRUCTION — ARCHITECTURAL

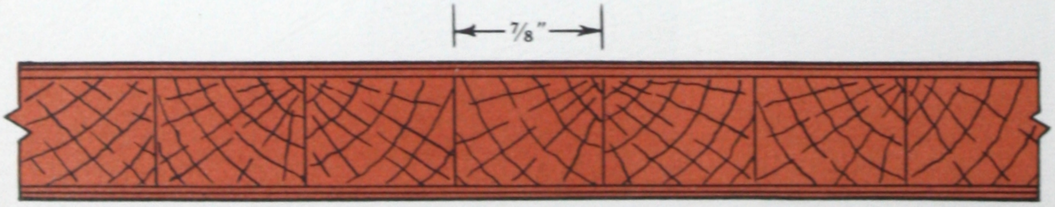
There are different types of panel construction, designed to do different jobs. However, this handbook will limit itself to those constructions usually employed in top grade architectural work.

Plywood panels can now be made in one piece to a height of 16'0" in a single hot plate press operation



LUMBER CORE CONSTRUCTION

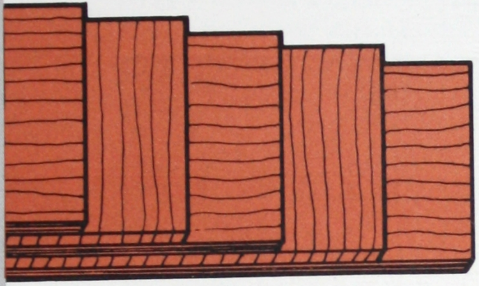
This type of construction is the cabinetmaker's standby, and consists of a heavy core of sawn lumber with crossbanding and face plies. The heavy lumber core permits doweling, splining and dovetailing. Face veneers are 1/28" thick. Crossbands are 1/16" and are of Basswood or Poplar. Woods of uniform texture such as Bass and Poplar are preferred for the core. The cores normally consist of 3½" or less strips made from 4/4 lumber, cut to suitable length, edge glued and clamped until the glue has set. The strips are then placed in a High Frequency Core Gluing Machine where the resin glue of the core strips is cured electronically without inducing excess moisture into the carefully kiln dried lumber. All Algoma grade is hot plate resin glued.



COUNTERFRONT CONSTRUCTION

Basically, this construction follows that of lumber core, but with certain important changes. These panels, installed horizontally with the face grain revealed vertically are subject to unusual stresses. The lumber is planed to ⅞" thickness, then gang ripped to a width equivalent to the core thickness. These lumber strips are then set on edge like "Stave Core" construction. All of the strips are really turned at right angles to their original position in the board. This reduces the warping tendency that is present in solid lumber. Also the panel is especially stable due to the loose core construction. The crossbands are 1/16" thick and all crossbanding is full length as a 150" lathe for rotary cutting veneer in 12' lengths is used. This eliminates the necessity of scarfing.

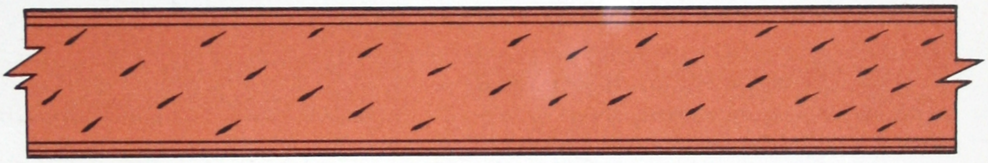
VENEER CORE CONSTRUCTION



Faces, crossbands and core veneers are always laid in odd numbers such as 3-ply, 5-ply and 7-ply, the faces being 1/28″ thick and the crossbands 1/16″ thick. The grain directions of adjacent plies are generally at right angles to each other. This plus the fact that a number of plies are used for this construction contribute to the fact that there is normally less contraction and expansion in this panel.

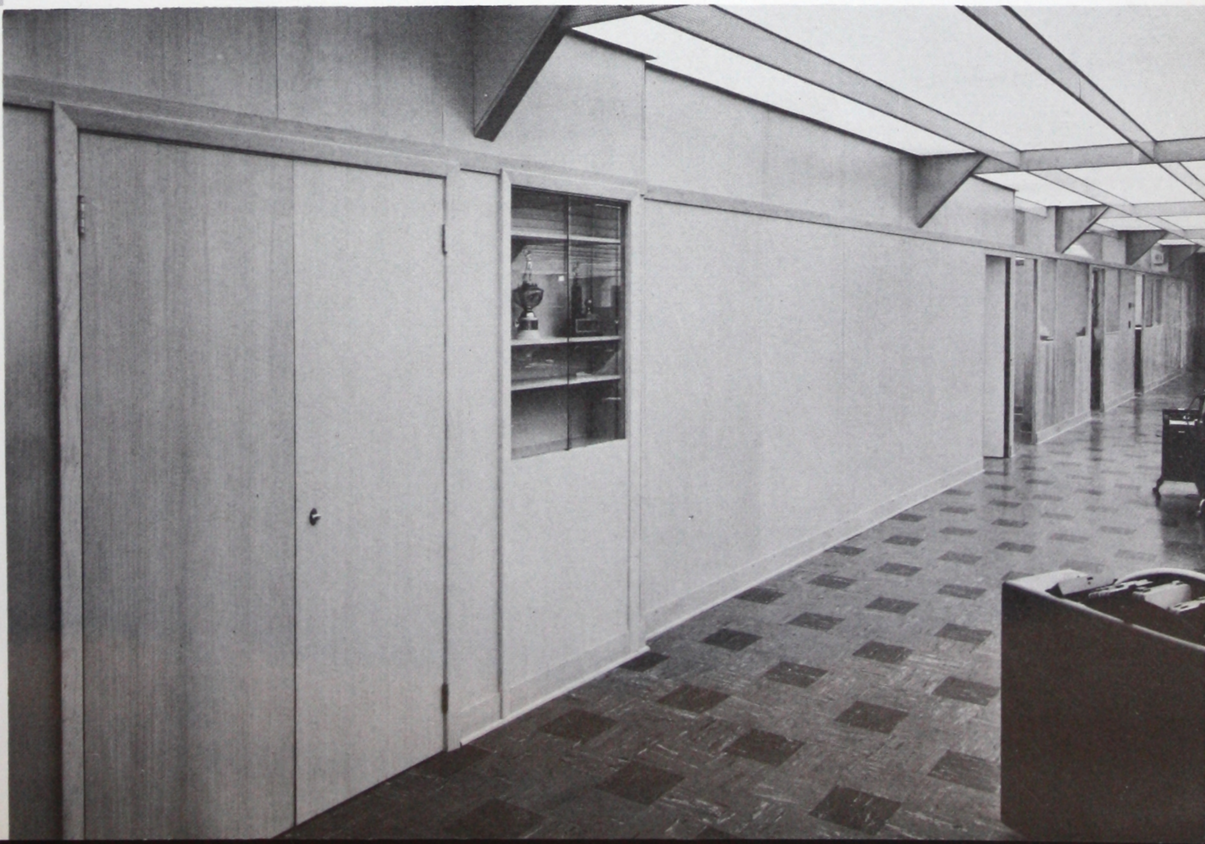
This is a standard method of plywood construction which is less costly but which cannot be doweled as easily as lumber core. If panel edges are exposed, the end grain of the plies is revealed.

NOVOPLY CORE CONSTRUCTION



Novoply is an all wood panel, a three-ply board of balanced sandwich construction, consisting of a dense outer surface of specially prepared wood veneer flakes, a lower density core of medium sized chips, and another higher density layer of flakes. These flakes and chips are resin-coated and impregnated, and the three layers (or plies) are simultaneously formed and fused together under heat and pressure.

Selected veneers are sometimes bonded to this panel for a decorative effect.



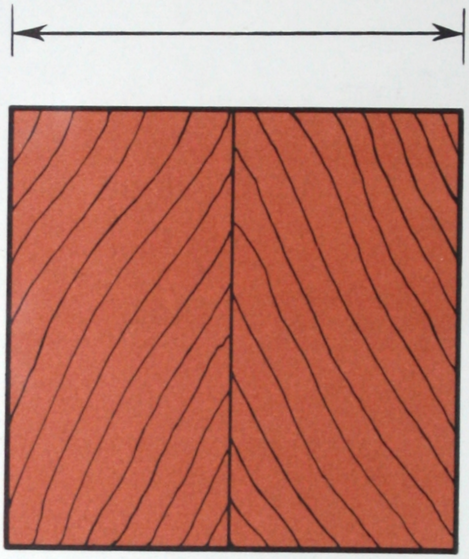
Showing how permanent and movable Weldwood partitions are used in combination to provide permanent office areas while allowing for anticipated expansion. Aurora Pump Company, Aurora, Ill. Distributor: Hartmann-Sanders Co., Inc.

PANEL SIZES

SIZES

The size of shop pre-assembled panel sections is actually determined by the size of openings and elevators that these sections must pass through. For instance, the largest section that you can get through a 3′ x 7′ door is about 7′-3″ wide. Elevators provide additional problems, since panel heights are involved here. In some cases panels may be raised on roof of elevator cab. On the other hand, an installation in the ground floor of a new building would permit much larger shop assembled panel sections, since the only limitation would be the capacity of the truck the panels were delivered in, assuming of course, that the entering ground floor doorway were large enough.

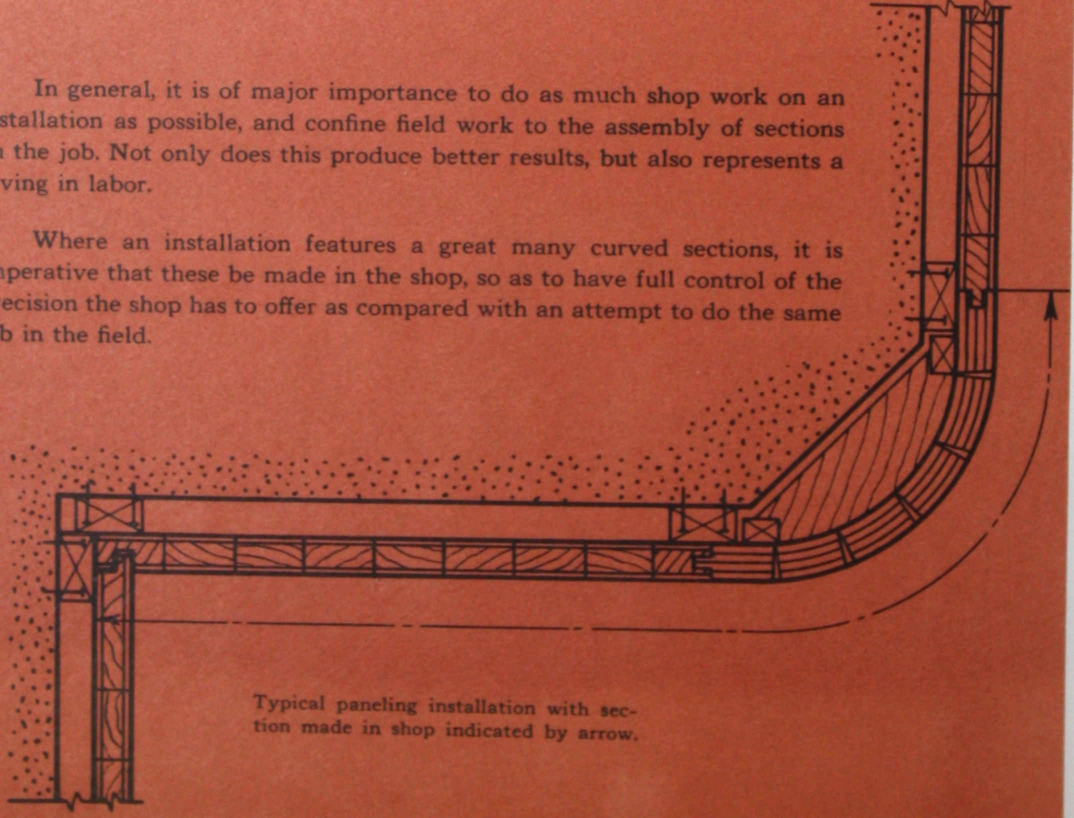
Advance consideration to this subject can save embarrassing headaches.



SHOP VS. SITE

In general, it is of major importance to do as much shop work on an installation as possible, and confine field work to the assembly of sections on the job. Not only does this produce better results, but also represents a saving in labor.

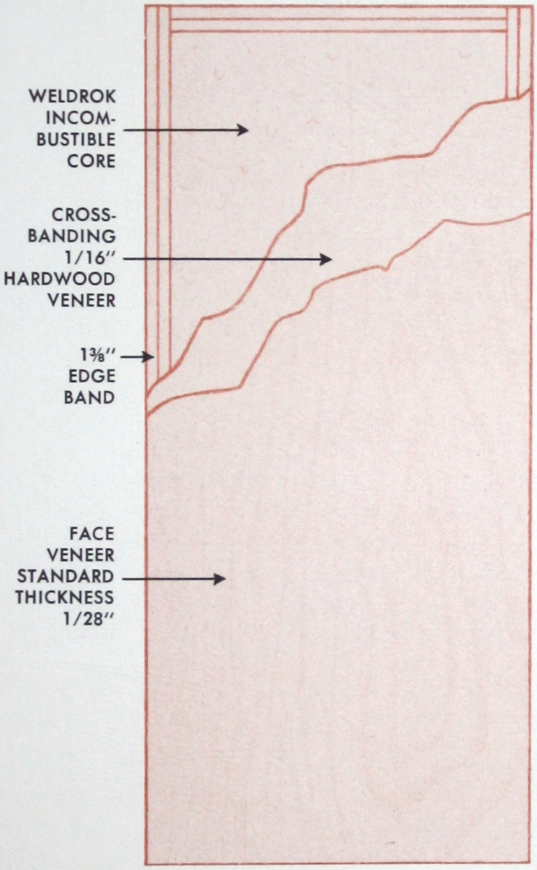
Where an installation features a great many curved sections, it is imperative that these be made in the shop, so as to have full control of the precision the shop has to offer as compared with an attempt to do the same job in the field.



Typical paneling installation with section made in shop indicated by arrow.

PARTITION PANELS

Where there is a desire to employ a flexible system of space division together with highly decorative wood surfaces the Weldwood Movable Partition Panel system is employed.


WELDROK INCOMBUSTIBLE CORE
CROSS-BANDING 1/16" HARDWOOD VENEER
1⅜" EDGE BAND
FACE VENEER STANDARD THICKNESS 1/28"

beautiful hardwood faces: Weldwood Partition panels are faced both sides with fine hardwood veneers that complement both traditional and contemporary architecture and furnishings. Panels faced with different woods on each side may also be obtained.

fire-resistant: An important feature of the Weldwood Partition Panel is the Weldrok core—the same core material used in the famous Weldwood Fire Door. This revolutionary mineral core material is incombustible, inert and extremely homogeneous. It provides a core which is light in weight, strong and dimensionally stable.

soundproof: The construction of the partition panel with the special Weldrok core makes a more effective sound barrier than a 2 x 4 stud partition with metal lath and plaster on both sides. These wood-faced panels also absorb 4 times as much sound as metal or plaster.

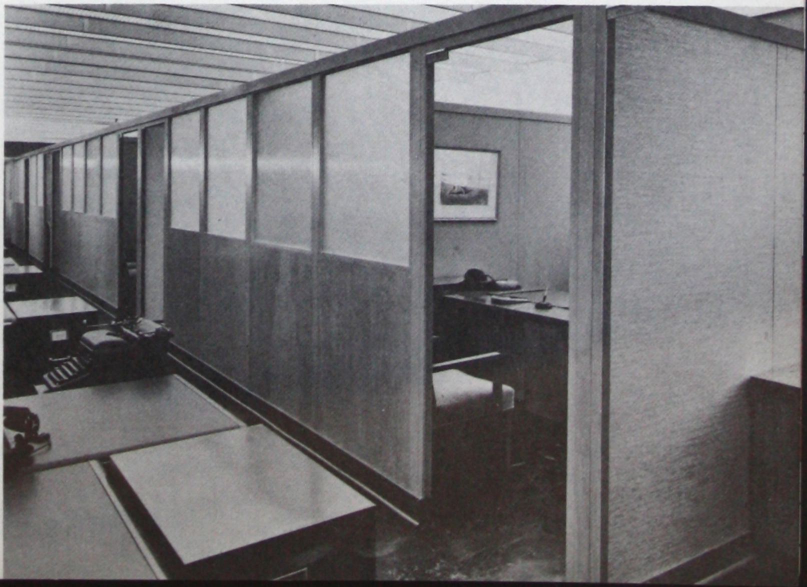
exceptionally strong: A Weldwood Partition Panel 3'0" x 7'0", 1¾" thick with 7' edges resting on 2" bearings has supported a total load of 8,000 lbs.—or extreme fibre stress of 2,780 lbs. per sq. in. When the weight was removed, the panel returned to its original flat shape. These panels will resist compression to 500 lbs. per sq. in.

light in weight: This partition panel weighs less than 4 lbs. per sq. ft.

will not delaminate: Waterproof film phenolic resin glue is used to permanently bond the faces and cross-bands to the core. This provides extra protection, even under the most severe service conditions.

warpfree: The inert Weldrok mineral core assures that the panels will remain warpfree and stable.

Weldwood Partition Panels have been used to subdivide many large office buildings in such woods as Korina, Walnut and Mahogany.



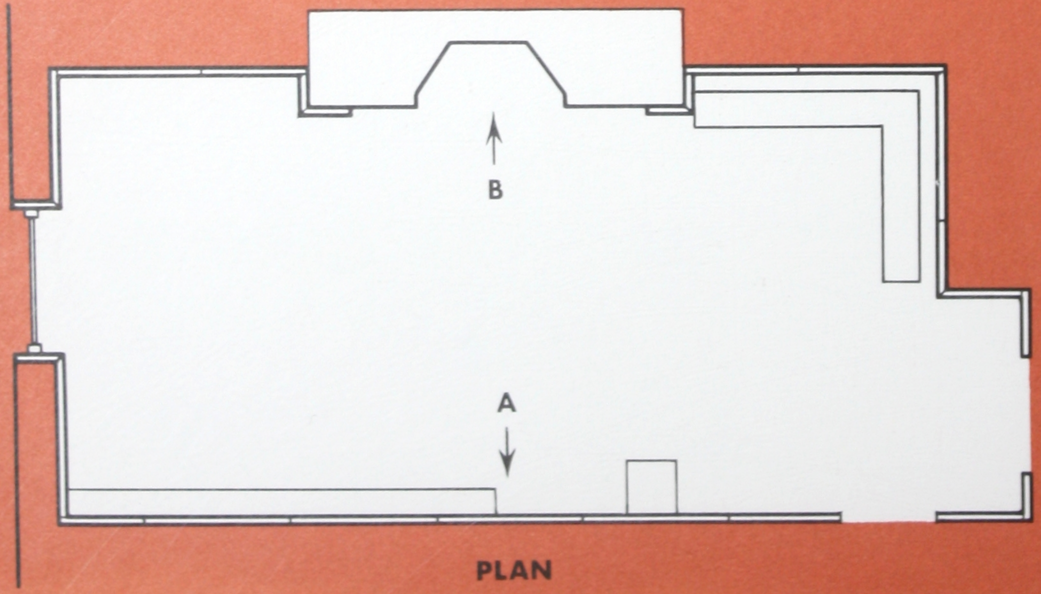
Birch Weldwood Movable Partitions used to create and to separate the private executive offices from the general office area.
Admiral Radio and T.V. Corp., Chicago, Ill.
Designer: Harper Richards
Distributor: Hartmann-Sanders Co.

LAYING OUT THE JOB, BASED ON A TYPICAL ROOM LAYOUT

The accompanying sketches show a typical room layout in plan and elevations and a selection of joint treatments at corners and walls that could be used to work out the paneling scheme.

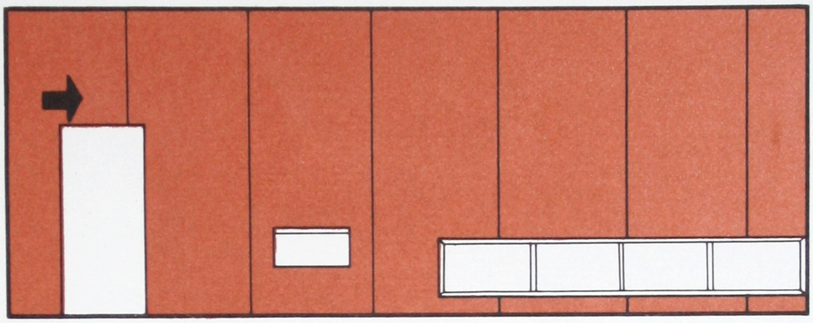
One of the first things to determine in laying out a room, is the *widths* of the panels to be used. If architectural sequence matched stock sets are to be used, a 4 foot width will be the width dimension most frequently specified (see page 3). This means that since the grain of the wood follows in faithful sequence from one panel to the next, certain care must be taken in planning so that cutting of panels is kept to a minimum. For instance, if a fireplace is located along one elevation, it would be wise to locate a panel directly on the center line of the fireplace and work the remaining panels to the left and right so that any cutting of panel widths would occur in the corner of the room, a less noticeable spot.

Assuming a flush treatment is planned, the question which often arises is how to get the last panel in when both ends of a wall are "locked in" to the adjacent walls. Figures #1 and 2 demonstrate two ways in which this problem is customarily handled. The panels are simply bowed and sprung into place, the slight chamfer on the tongues (see drawing) being of help in achieving this. When this method is used, panels are nailed top and bottom as shown in sketch "B", page 17. Nailed areas are then covered with a molding and base board. Actually the architect need not overly concern himself with this type of problem since it is in handling such procedures as this that the high skill of the quality woodworking shop makes itself felt.



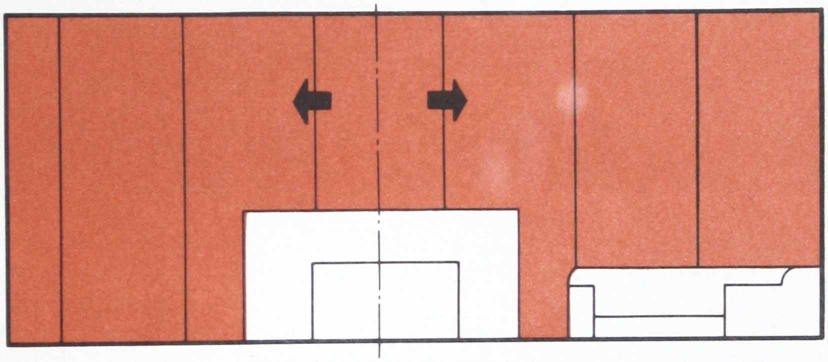
PLAN

ELEVATION WALL A



Panels start from one end and follow along wall in sequence.

ELEVATION WALL B



A panel is located over fireplace with rest of panels working in sequence to the left and right. Some cutting may be expected when reaching the corners of the room.

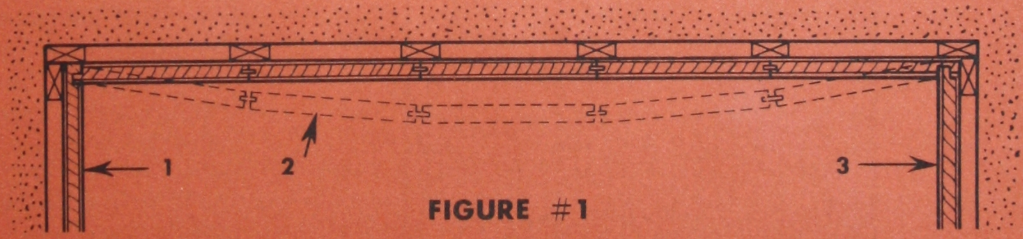


FIGURE #1

The adjacent wall #1 is installed first. Then the wall panels #2 are pre-assembled in a bow shape a few inches out from the wall with the tongues and dowels lightly meeting. The whole wall section is then sprung into place. Wall panel #3 can then be installed.

Fitting the
last panel
is no
problem to
the good
woodworker

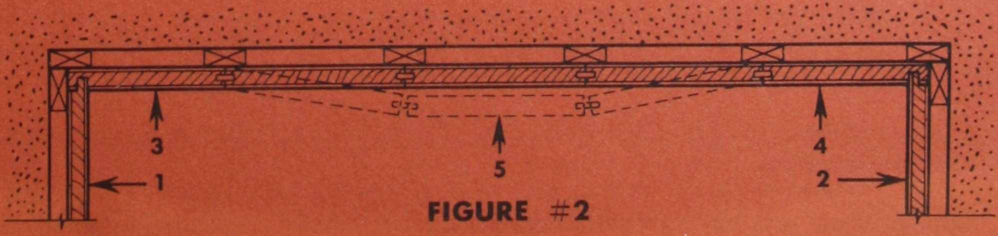
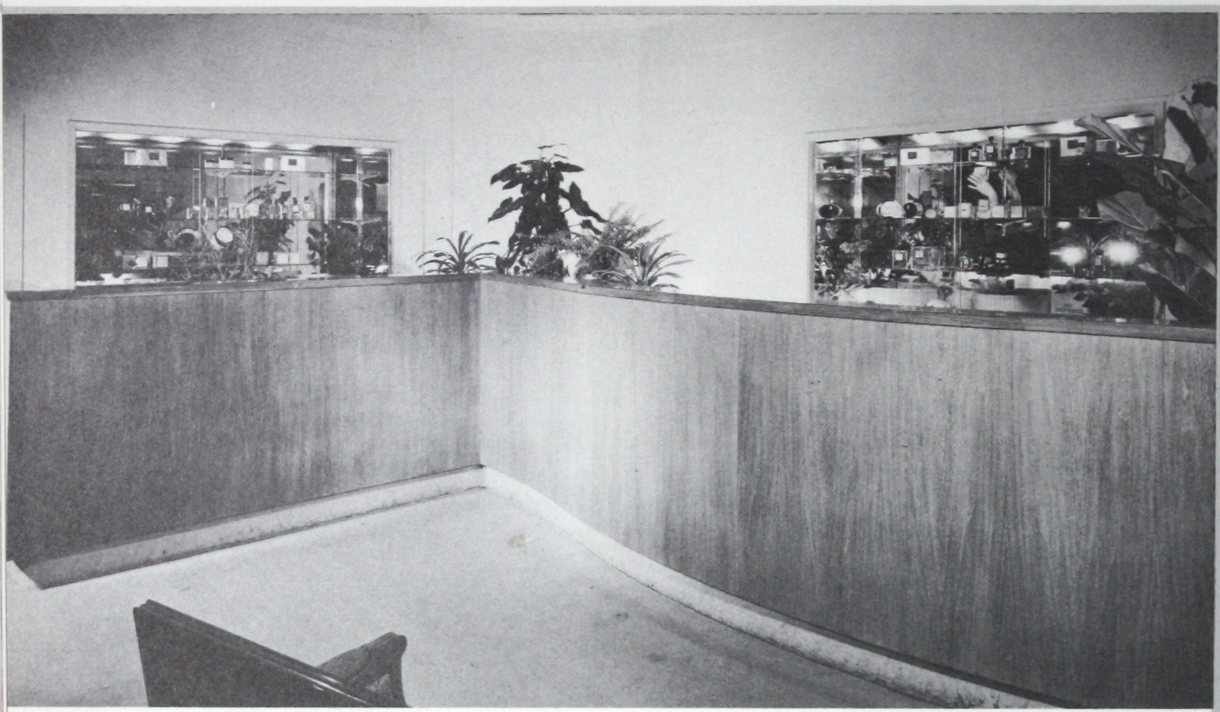


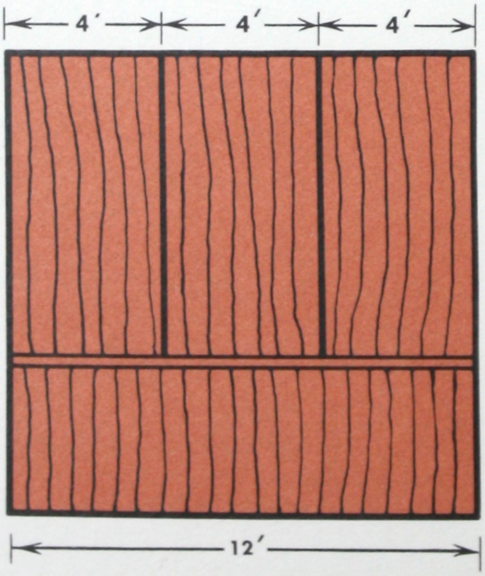
FIGURE #2

In this method it is assumed, that for construction reasons walls #1 and 2 had to be installed first. Panels #3 and 4 would then become a part of walls #1 and 2 and installed together as one piece. Wall panels #5 would then be bowed and sprung in place in the manner outlined above.



13/16" Walnut Weldwood Plywood appointment desk • Antoine's Beauty Salon, Saks Fifth Avenue, New York City
Architect: Peter Copeland Assoc. • Contractor: Charnin Stern.

COUNTERFRONTS



Wainscot treatments, whether used alone or in combination with matching wall paneling, can be constructed most advantageously from counterfront stock.

The unique construction (see page 12) of these panels permits widths up to 144".

Since the method of manufacture makes it possible to achieve very long runs in width, the use of counterfronts offers a minimum of visible joints in a given wall area.

Other advantages include the elimination of waste and labor that often result when large size panels are cut down to fit wainscot locations.

The advantages of making counters from counterfront stock need little discussion. A long run of counter can be executed with one piece of material which, since it has sufficient thickness, requires relatively little framing.

FURRING

Plywood expands only 1/10 as much across the grain as does solid wood, but care must still be taken to permit expansion and contraction

A most important part of any installation is the studding or furring to which the panels attach. Regardless of the care with which panels may be jointed and fitted, the furring must hold them in place.

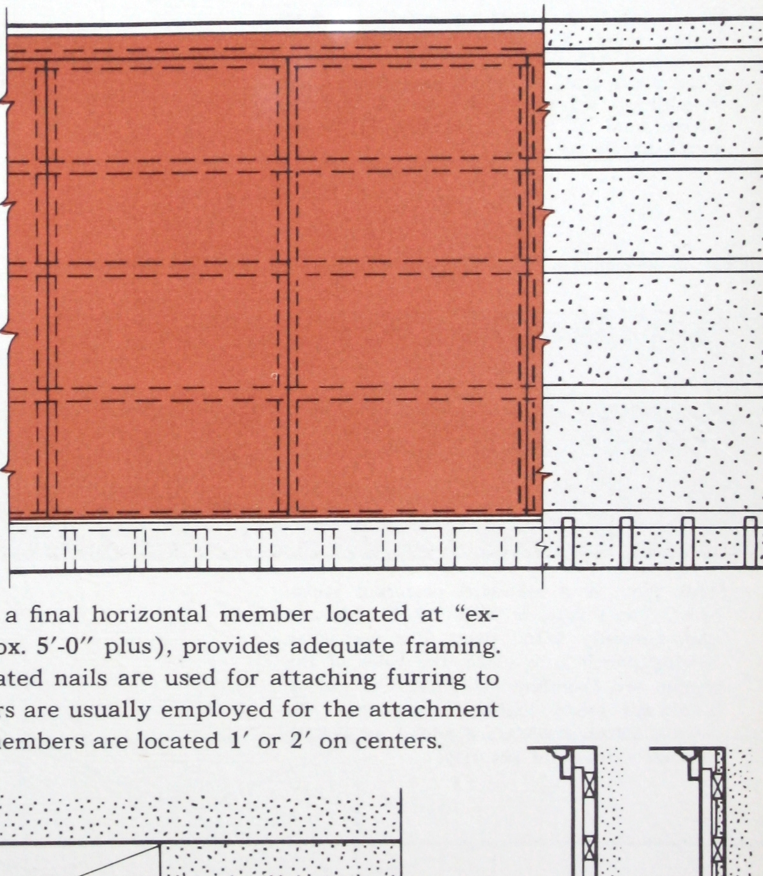
If this work is incorrectly designed or set, the job will not be permanently satisfactory. It is difficult to do a first-class workmanlike job merely by nailing furring strips to a wall and attaching the panels to them. Problems presented by the furring should be studied just as carefully as any structural factor in installation. First of all, the frame must be adequate in size. Intervals between framing members must be sufficient to support the construction. Panel edges must always be backed up. Where joints come between backing, grounds must be let in for nailing bases.

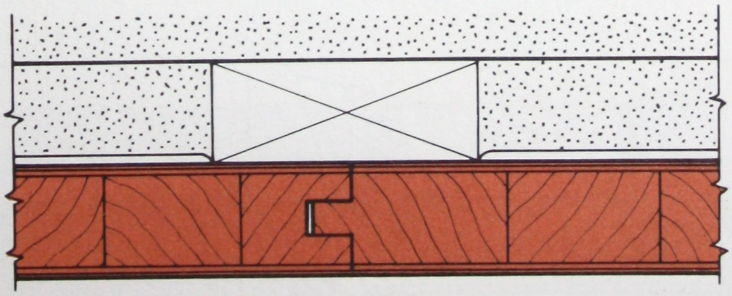
Care must be taken in leveling furring, otherwise walls will not be true and panel fastening may be under a strain.

When in doubt use horizontal furring on 3' centers and at all panel joints

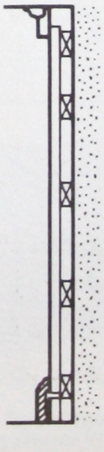
Wall Elevation

The usual method of furring a wall is to run horizontal 1″ x 2″ strips, usually Spruce, across the wall, and 1″ x 2″s let in vertically where panel joints occur. One horizontal member is located at the base and one at the ceiling. A third horizontal member is located at chair rail height (between 30″ to 36″ from floor). On rooms with ceiling heights of 8′ or 9′, a final horizontal member located at "extended arm" height (approx. 5′-0″ plus), provides adequate framing. Cut steel nails or rosin coated nails are used for attaching furring to plaster. At the base, soldiers are usually employed for the attachment of the base board. These members are located 1′ or 2′ on centers.

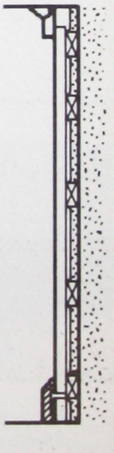




Many city building codes (including the City of New York) require that the furring be encased on three sides, set in the plaster, or, on new construction, that rough plaster be troweled in and made flush with the furring. This is to prevent flue action resulting from the air space between panels and wall.



Applied

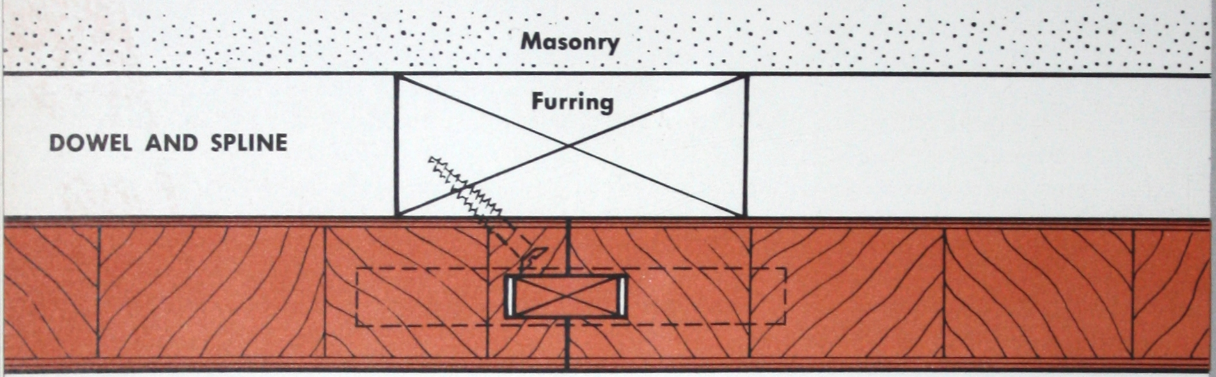


Flush

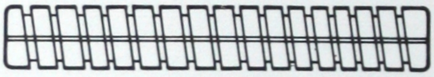
JOINTS

Although there are many ways of joining panels together, the test of time has shown certain generally accepted methods. All other joint treatments become variations on these original concepts.

DOWEL AND SPLINE

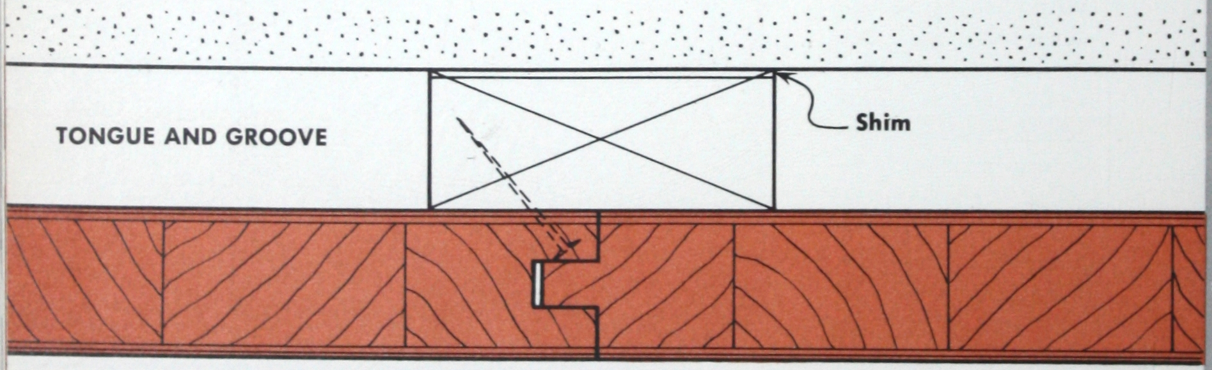


This joint is the most universally used in joining panels. The spline, usually about ¼" thick and ⅝" wide, is continuous and is often made from plywood. Sometimes used in addition, the dowels are on centers anywhere from 6" to 12". Usually #7 or #8 spiral dowels are used.



Dowel

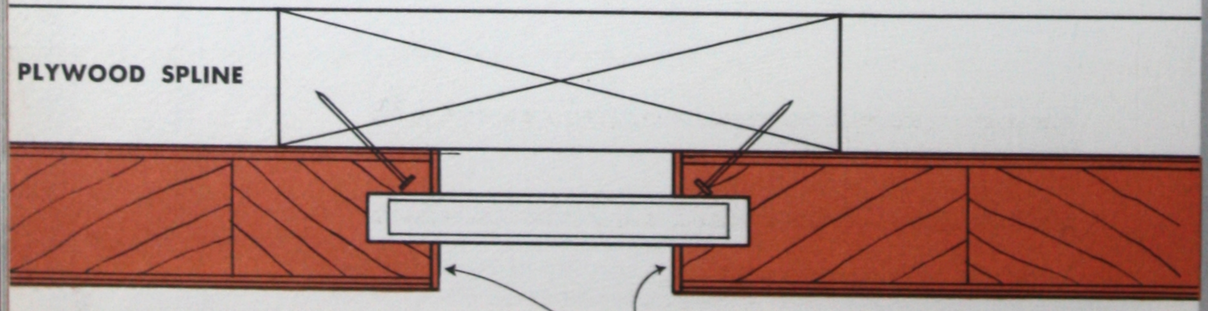
TONGUE AND GROOVE



Shim to level furring where necessary

This joint is a standard preferred treatment. The tongue is usually ¼" wide and approximately 5/16" deep. For use when bowing panels into place, the sides of the tongue are chamfered slightly. The groove is always made slightly larger than the tongue. Often dowels are added as well to provide extra joint security.

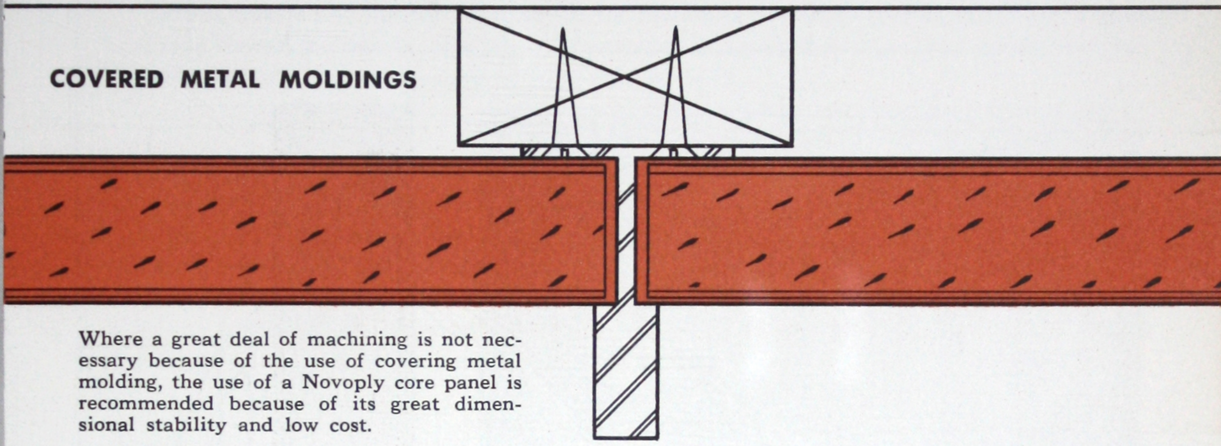
PLYWOOD SPLINE



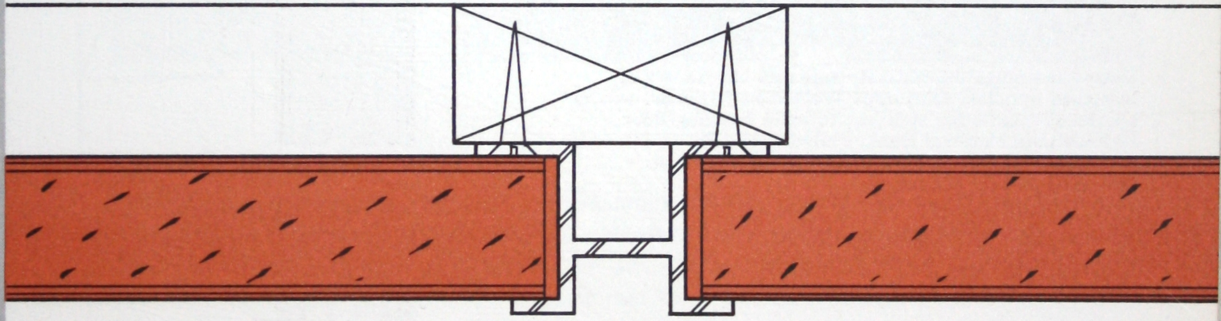
¼" plywood or solid spline to match face of paneling. Veneering by cabinetmaker.

1/28" veneer—round edges to face

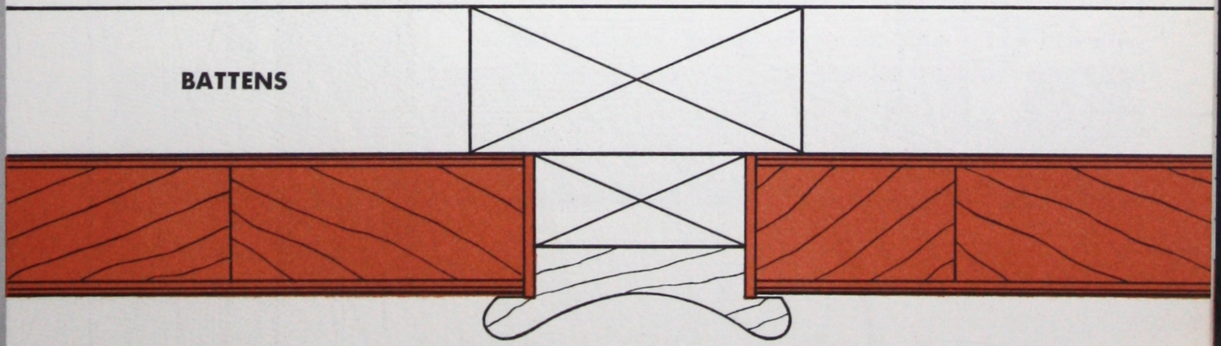
COVERED METAL MOLDINGS



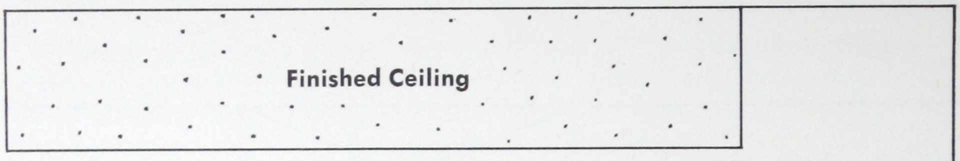
Where a great deal of machining is not necessary because of the use of covering metal molding, the use of a Novoply core panel is recommended because of its great dimensional stability and low cost.



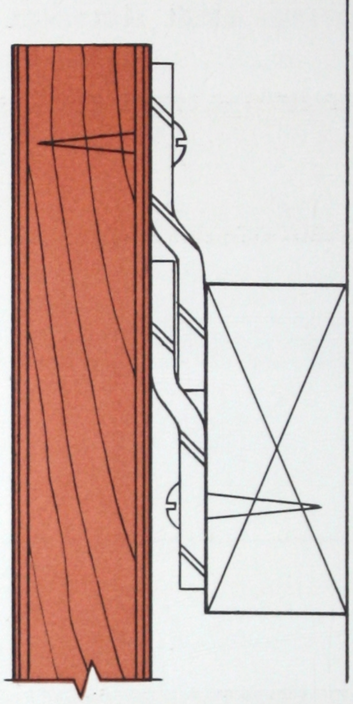
BATTENS



Applied battens add interest and allow for expansion of the panel.



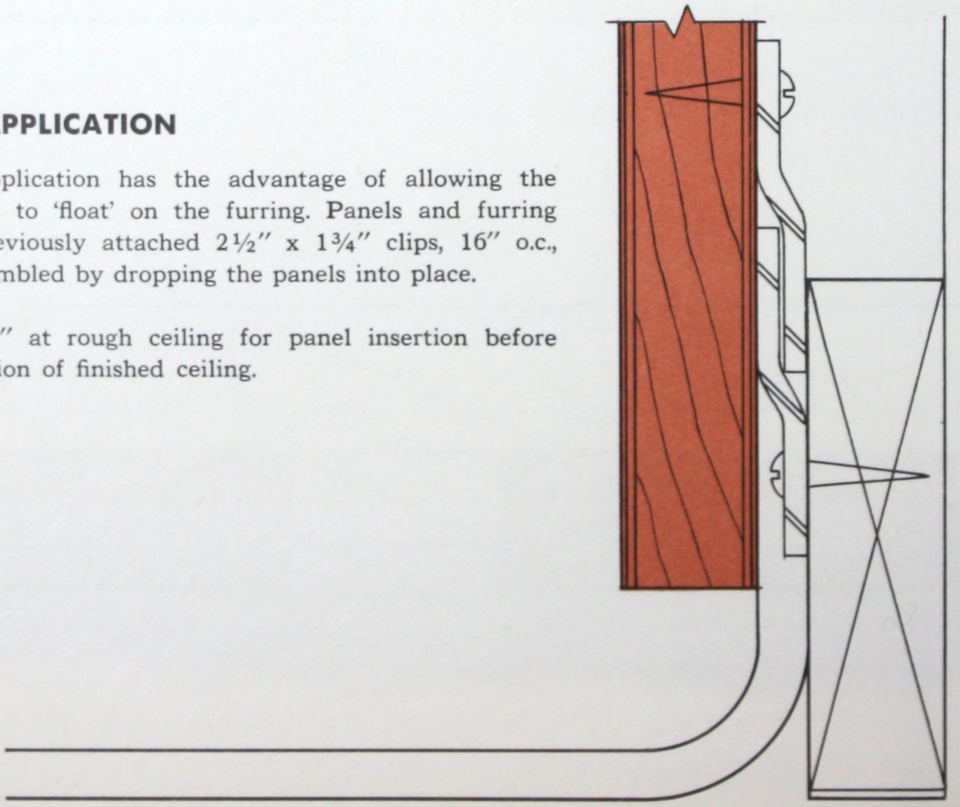
Raised moldings decoratively separate the panels of sequence matched Butternut Weldwood Plywood, at the basement mezzanine stairway to main banking floor.
Philadelphia National Bank, Philadelphia, Pa.
Architect: Harbeson, Hough, Livingston & Larson
Installer: A. Wilt & Sons



CLIP APPLICATION

Clip Application has the advantage of allowing the plywood to 'float' on the furring. Panels and furring with previously attached 2½″ x 1¾″ clips, 16″ o.c., are assembled by dropping the panels into place.

Allow 1″ at rough ceiling for panel insertion before application of finished ceiling.



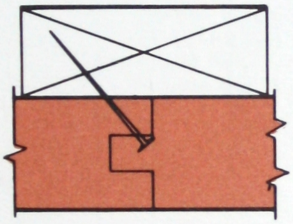
NAILS, SCREWS

Both screws and nails are employed for fastening panels to furring strips. As a general rule screws, hidden by the joints, are preferred, since they allow for panel removal where necessary. Screw sizes are usually #10 or #12.

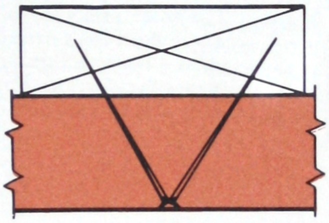
Proper Use of Nails

Nails also do an excellent job and are often desirable due to their small diameter when working in close quarters. Face nailing, although to be avoided if possible, is not undesirable when handled intelligently. Nails can be installed diagonally for better locking effect by using the same face hole. (see sketch) The nails are countersunk, of course, and the holes filled with wood putty of matching color.

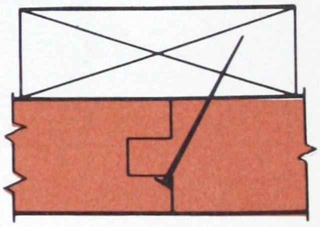
Panels can go directly on studs in new wood construction



A



B



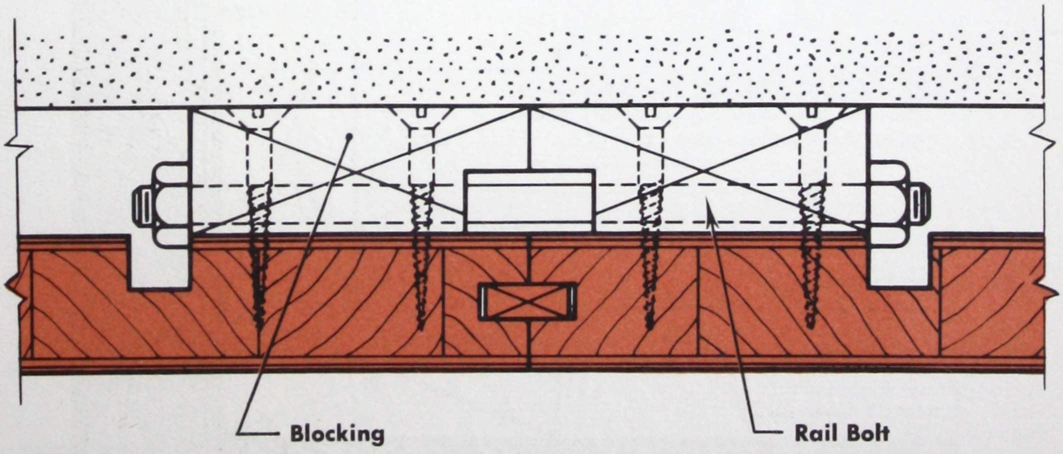
C

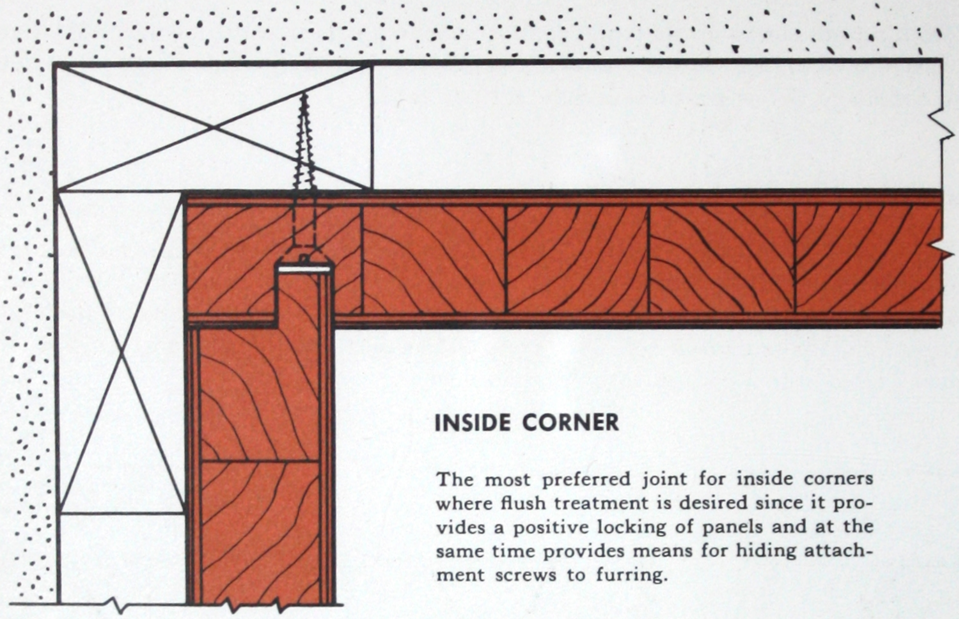
JOINT CLAMPS

Where very long runs of walls are indicated ranging between 40 or 50 feet, it is often the practice to utilize joint clamps and assemble three panels together by this method. The panels are prepared with clamps in the woodworking shop and assembled at the job site. These three-panel-wide sections can then be assembled to each other by bowing in the same manner as outlined on page 17. When this method is used panels should be nailed top and bottom as shown in sketch "B" above. The nailed areas are then covered with a molding and base board.

Blocks are screwed and glued to panels

Rail bolts usually 3' O.C. and often have special heads so can be turned with nail set



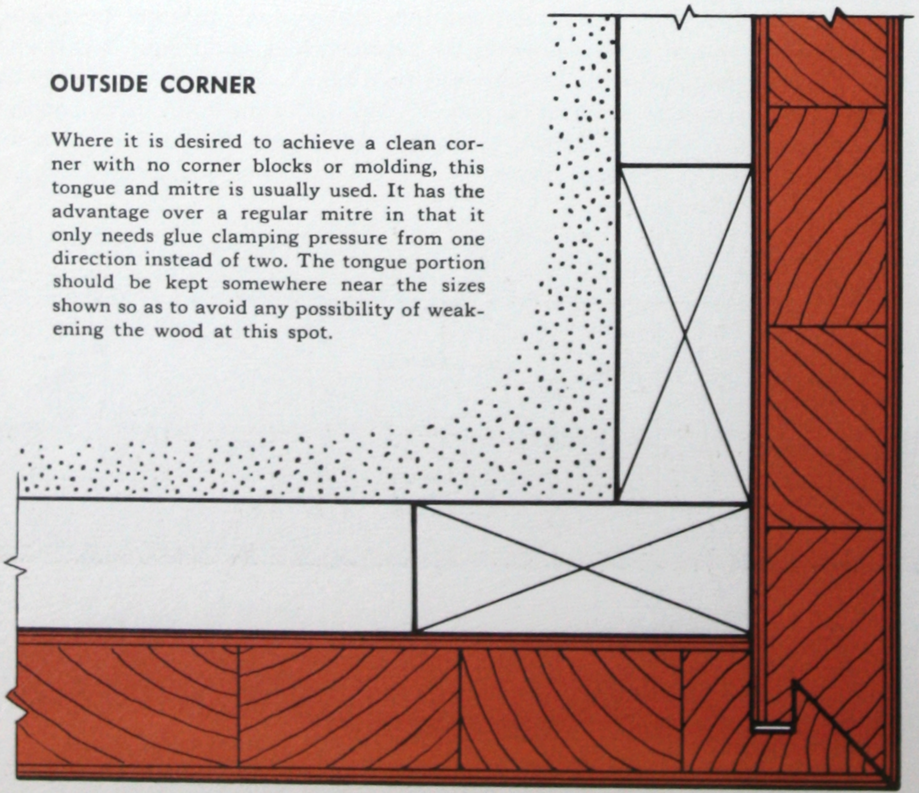


INSIDE CORNER

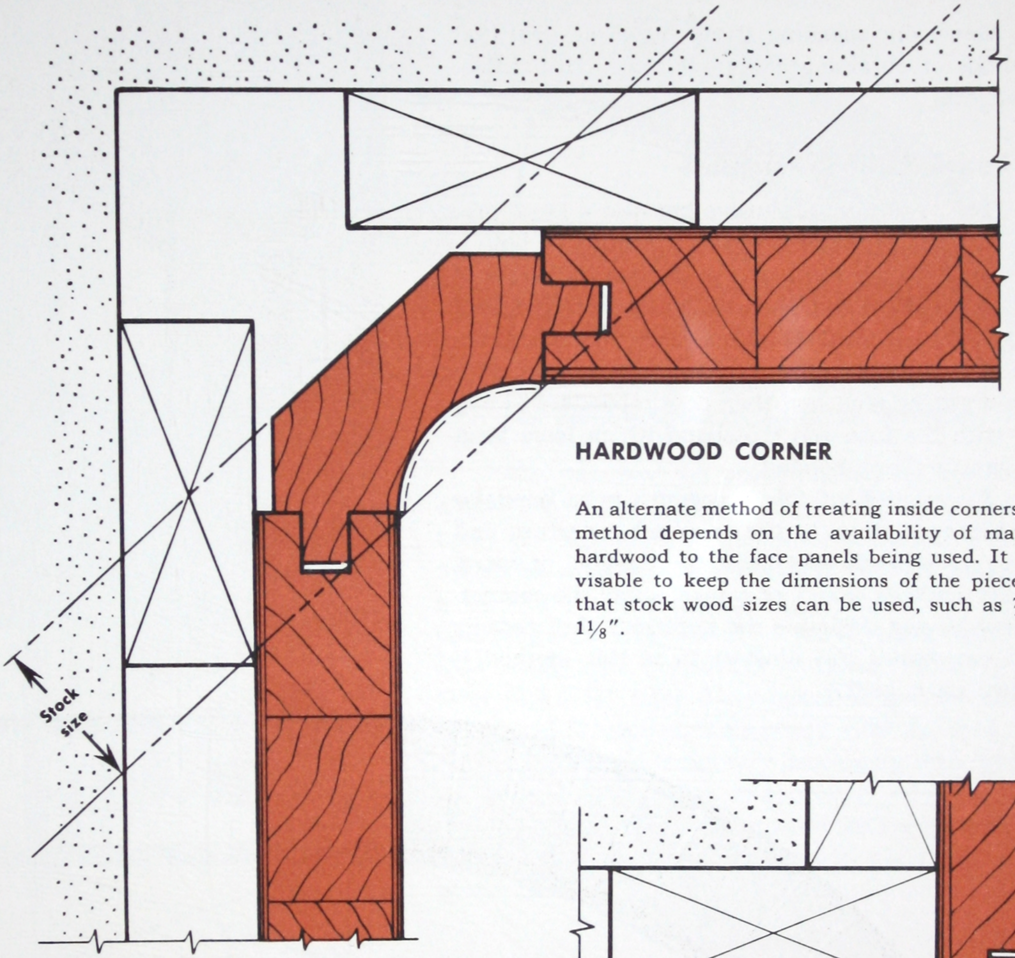
The most preferred joint for inside corners where flush treatment is desired since it provides a positive locking of panels and at the same time provides means for hiding attachment screws to furring.

OUTSIDE CORNER

Where it is desired to achieve a clean corner with no corner blocks or molding, this tongue and mitre is usually used. It has the advantage over a regular mitre in that it only needs glue clamping pressure from one direction instead of two. The tongue portion should be kept somewhere near the sizes shown so as to avoid any possibility of weakening the wood at this spot.



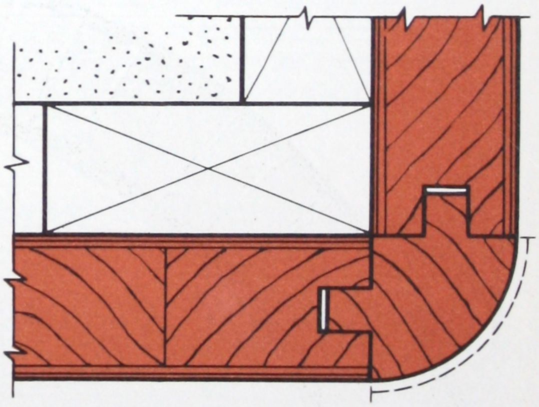
Often used in furniture constructions, too.



HARDWOOD CORNER

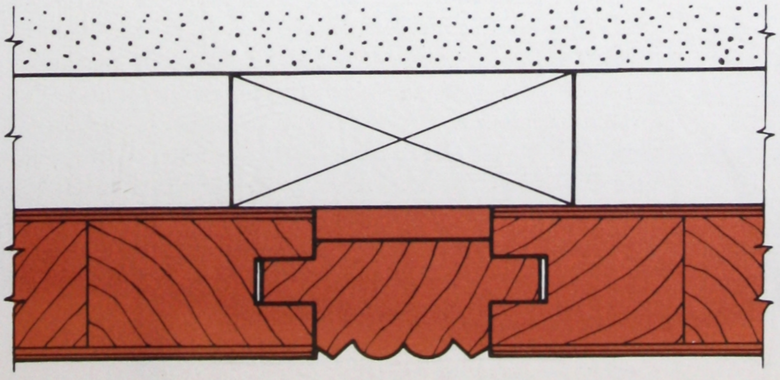
An alternate method of treating inside corners. This method depends on the availability of matching hardwood to the face panels being used. It is advisable to keep the dimensions of the piece such that stock wood sizes can be used, such as 7/8" or 1 1/8".

Dotted lines
indicate slight
projection
often used



HARDWOOD CORNER

Outside corner handled in the same manner as inside corner.



DECORATIVE BATTENS

No matter what form the vertical batten may take, it is wise to provide solid tongues for interlocking with adjacent panels. The illustration shows a good example of this. The batten should provide for expansion and contraction, and may be made from a variety of materials: wood, metal, Micarta.

CURVED SECTIONS

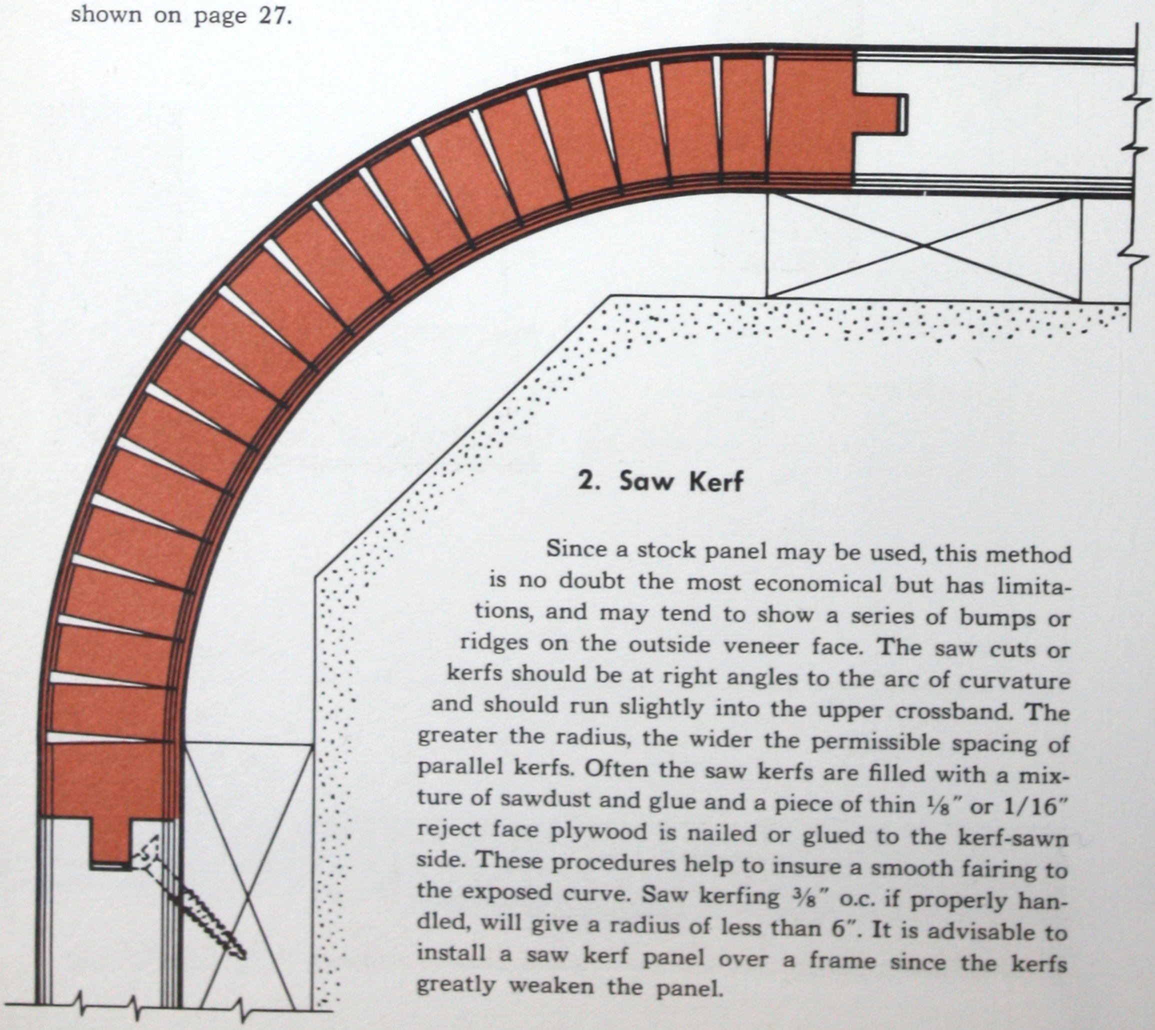
Generally speaking there are three principal methods of obtaining curved sections on architectural jobs.

1. Panels built to template

This is a more expensive but also a more precise method. It requires the construction of both a male and female form, or die. Successive layers of thin veneers are laid up between the dies and held under pressure until the glue has set. Standard practice is to glue the core, crossbanding and back with a cold setting glue, and then do a secondary gluing job with the face and crossband which have been previously Tego bonded.

A variation of this procedure is to bandsaw lumber core stock to the required curvature and apply crossbands and faces to it under pressure. These methods would, of course, entail the cabinetmaker having available the necessary thin veneers and crossbands. An illustration of this method is shown on page 27.

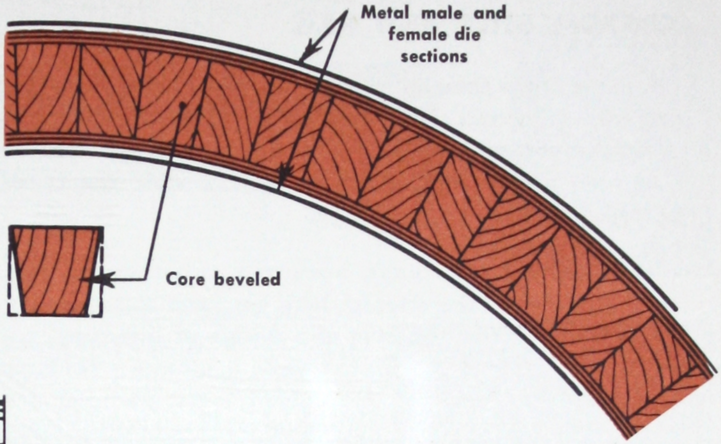
Quartered Walnut Weldwood
decorating the
mezzanine hatcheck stand area.
Statler-Hilton Hotel, Dallas, Texa
Architect: William Tabler
Designer: H. Stojowski
Installer: Storecrafters

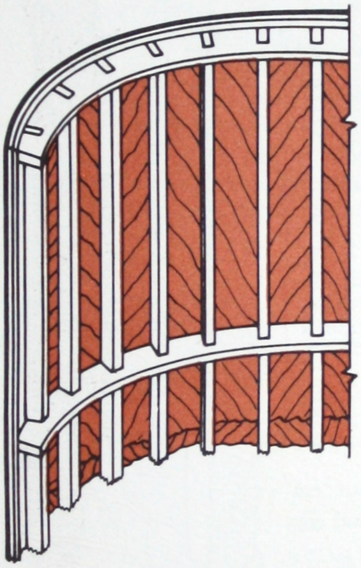


2. Saw Kerf

Since a stock panel may be used, this method is no doubt the most economical but has limitations, and may tend to show a series of bumps or ridges on the outside veneer face. The saw cuts or kerfs should be at right angles to the arc of curvature and should run slightly into the upper crossband. The greater the radius, the wider the permissible spacing of parallel kerfs. Often the saw kerfs are filled with a mixture of sawdust and glue and a piece of thin 1/8″ or 1/16″ reject face plywood is nailed or glued to the kerf-sawn side. These procedures help to insure a smooth fairing to the exposed curve. Saw kerfing 3/8″ o.c. if properly handled, will give a radius of less than 6″. It is advisable to install a saw kerf panel over a frame since the kerfs greatly weaken the panel.

Alternate Template Construction





3. Field construction of Curved Sections

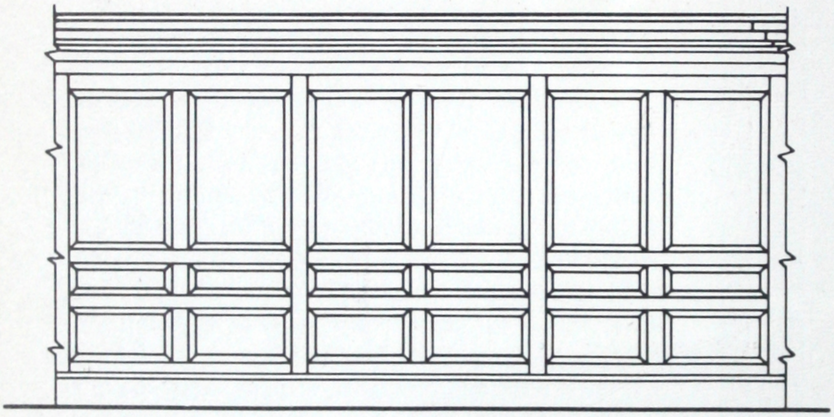
This can best be accomplished by erecting a stout framing of 1 x 2's, 2 x 2's or 2 x 3's on centers up to 12″ depending on the radius of the curve and with cross members band sawed to contour. To this a ¼″ Fir panel is solidly nailed and glued. The entire surface of the panel is then coated with a cold setting glue, preferably Weldwood urea resin. Over this a ⅛″ thick 3-ply panel of the matching face wood is applied. This panel must be held in place by nails and temporary bracing until the glue has set. This procedure is especially effective on convex curves. However, it must be remembered that a strong frame be built to withstand the pull of the panel.

Fidelity Trust Co., Pittsburgh, Pennsylvania
Architects & Engineers: Charles M. & Edward Stotz
Millwork by: C. Proessler & Son Co., Inc.

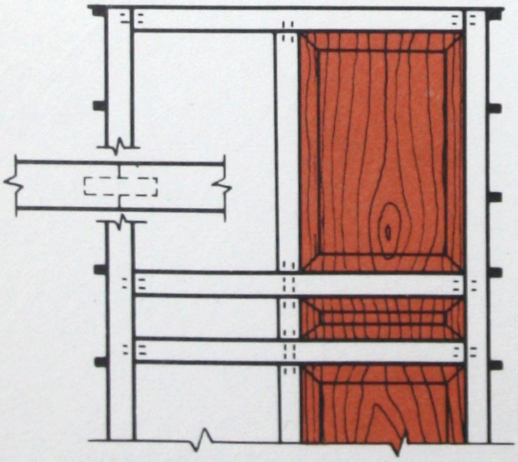
CUSTOM STILE AND RAIL

One of the time honored treatments in architectural paneling is the stile and rail and raised panel design. Plywood plays a very important part in producing this traditional effect since the wide widths make economically feasible the raised and recessed portions of the design.

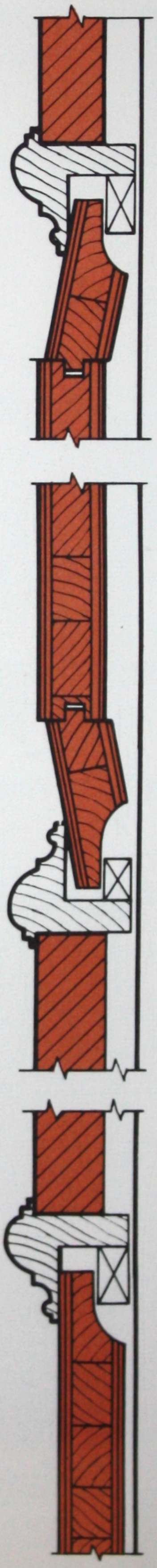
There are, of course, numerous variations on the basic theme, therefore the attempt here has been to show some generalizations in the handling of a design of this type.



Sketch A A typical elevation in stile and rail treatment showing two raised and one recessed panel.



All hardwood stiles and rails are carefully doweled together. Usually two or more width modules are framed together as a unit.



Typical vertical section elements based on elevation (See Sketch A).

This panel
shows where
the cuts
are made

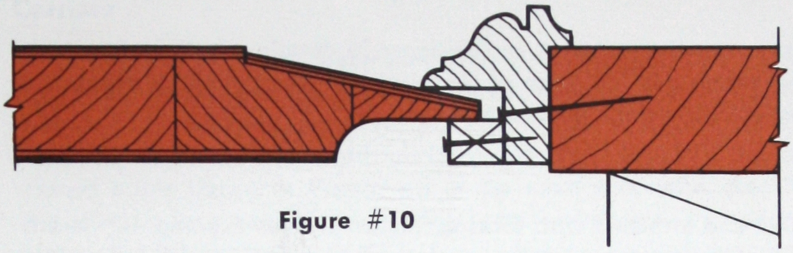
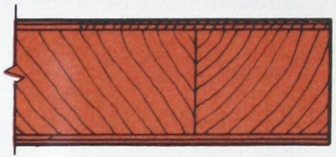
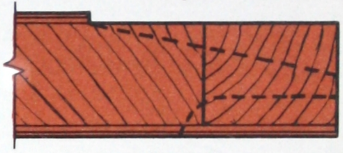


Figure #10

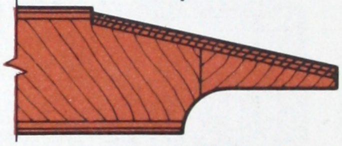
Although plywood is the most satisfactory material for raised panel elements, there are certain problems involved, since the end grain of the panel must always be considered. The problem becomes more difficult when bevels and mitres around the edges of the raised panel are contemplated. Certain solutions of these problems have been evolved by different woodworkers. Shown in Figure #10 and Figure #11 are two methods used. In both cases the face grain direction and figures of the raised panel are directly matched in the beveled edge strip. The method shown in Figure #10 involves stripping and re-gluing the veneer as follows: Step 1—cut off edge strips of veneer, being careful to keep sequence; Step 2—the proper bevel angle is routed from the lumber core as shown in the dotted line. The lower dotted line shows the material removed in order to tie in with the stile and rail (See Figure #10); Step 3—reglue veneer strip on bevel (where veneers meet at corners, slightly underscore at 45° the bottom face of the longer strips so as to fold over bevel.); Step 4—shows a section of the finished panel. In Figure #11 the plywood is left intact and the bevel is tongued into the raised element as follows: Step 1—edge strips cut from panel, again maintaining sequence; Step 2—remaining panel routed along dotted line. Step 3—edge strip showing tongue and area to be routed. Step 4—the edge strip fitted to panel producing bevel.



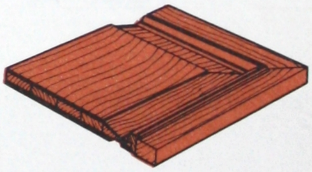
Step 1.



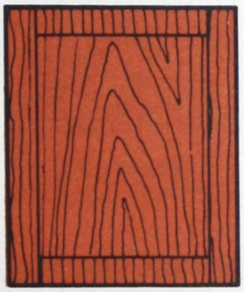
Step 2



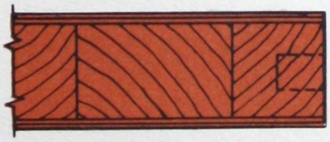
Step 3



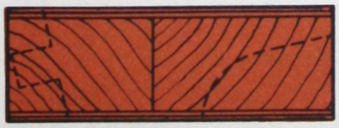
Step 4



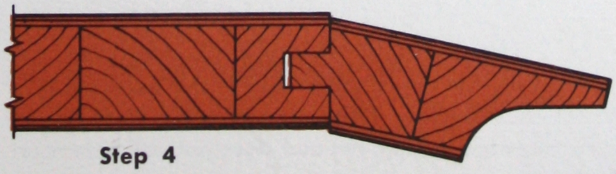
Step 1



Step 2



Step 3



Step 4

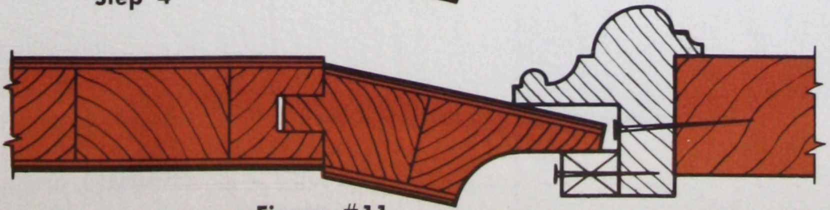


Figure #11

FURNITURE

Of principal concern to the architect and designer in detailing built-in furniture, is the problem of concealing the end grain of the plywood. Illustrated are several of the more common ways of overcoming this problem.

Figure #3

Hardwood applied and attached with locking tongue. Leaves exposed ¼″ width or so of hardwood. This is a standard preferred method of covering end grain. The hardwood can be Birch or a matching hardwood finished to match.

Figure #4

Matching hardwood rabbetted into plywood end. This method eliminates exposed hardwood on top surface but calls for close fitting in the shop.

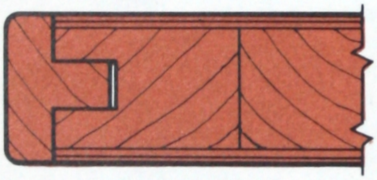


Figure #3

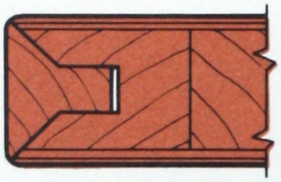


Figure #4

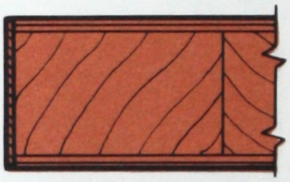


Figure #5

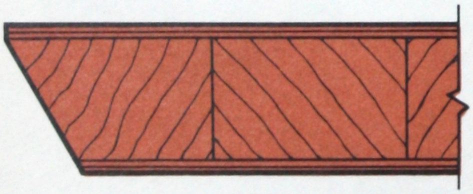


Figure #6

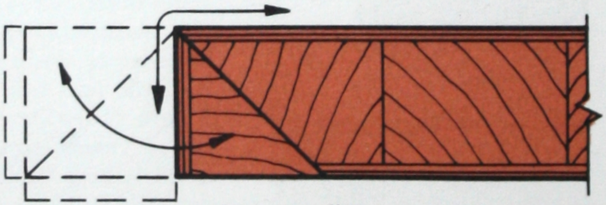


Figure #7

Figure #5

End of plywood re-veneered. This method calls for careful gluing and clamping to insure getting a good bond.

Figure #6 (Bevel)

In this method, the least expensive one, the raw lumber core is left exposed, and finished by paint or stain to match roughly the face veneer of the panel. The bevel, besides being decorative, tends to put the edge in shadow, and does not call attention to the edge finish.

Figure #7

This is a simple, inexpensive, on-the-job application. A strip is taken off the panel to be edged, then, after mitreing, it is glued and nailed to the edge. The continuous directional matching of veneer from top surface through edge is an advantage, and a border profile may be achieved.

Corners

There are of course many methods of executing corners for specialized types of furniture. Illustrated here are some of the commonly accepted procedures. Usually it is either desired to make the joint invisible, or to employ a corner block of a matching or contrasting hardwood for decorative effect. For the former condition the splined mitre shown in Figure #8 is the most successful. Another way to achieve this effect is by means of the outside corner joint shown on page 30. When using a corner post (shown in Figure #9), it is always wise to provide means for securely locking it in to the adjacent panels. All of these treatments shown can be glued and clamped together, eliminating face nails.

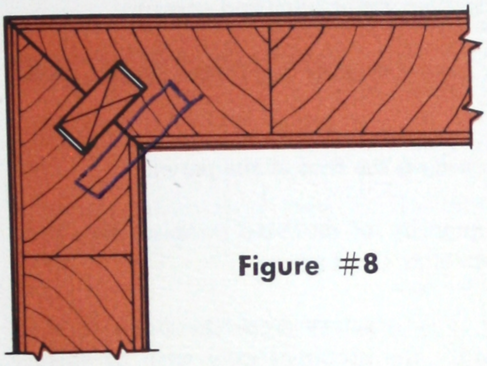


Figure #8

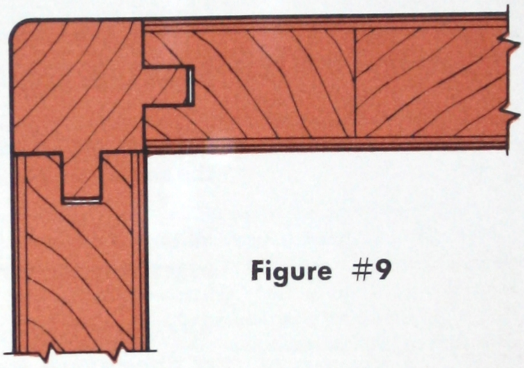


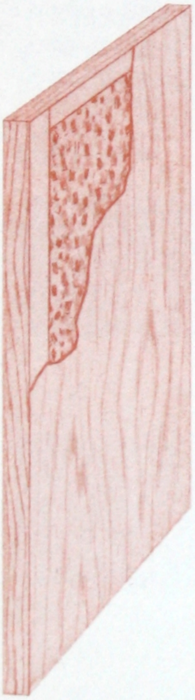
Figure #9

Lingerie Department
Neiman-Marcus
Preston Center, Texas

Dining Room, Mr. & Mrs. George P. Skouras
Greenhaven, Rye, New York
Architect: E. C. A. Bullock
Installer: Payer and Wangermann

SLIDING DOORS

When the utmost in dimensional stability is required for sliding and cupboard doors, selected veneers are applied to a core of Novoply.



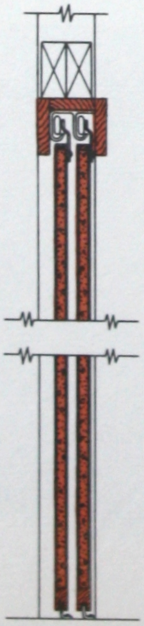
Novoply is an all wood panel, a three-ply board of balanced sandwich construction, consisting of a dense outer surface of specially prepared wood veneer flakes, a lower density core of medium sized chips, and another higher density layer of flakes. These flakes and chips are resin-coated and impregnated, and the three layers (or plies) are simultaneously formed and fused together under heat and pressure.

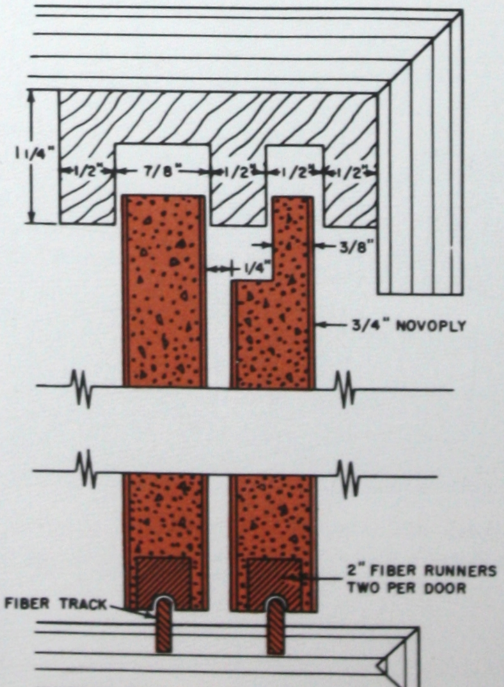
Faces of decorative hardwoods are laminated to this panel.

Novoply core doors should be edge banded, preferably with the same species as used on the face of the panel.

Where a sufficient quantity of one size permits, hardwood edges may be installed in the factory.

While 3/4″ Novoply is satisfactory from the point of view of dimensional stability the architect may wish to specify other thicknesses for reasons of profile, etc. (3/8″, 3/4″, 7/8″, 1″, 1 1/8″, and 1 1/2″ are available).





Wardrobes and storage cabinets, using 3/4″ Novoply core stock for sliding doors.

FINISHING

It must be stressed very strongly that great care should be taken in accomplishing a satisfactory finishing job. No one but a good hardwood finisher thoroughly familiar with fancy woods should be employed. A beautiful wood panel job can be ruined if the finishes are not applied skillfully. Many woodworkers, of course, have their own methods of finishing but the schedules outlined below may be considered typical of a good system of finishing. We will be very glad to cooperate and answer any questions on the subject upon request. Be sure to state the wood used and the tone and type of finish.

Finish to be Applied in Shop by Means of Spray Equipment

Products Used	*Remarks*
1. Water Stain.	Tones the wood to desired value.
2. Genuine Silex Paste Wood Filler of shade desired.	It is not necessary to use wood filler on such close grain woods as Birch or Maple.
3. One coat of Sanding Lacquer Sealer.	It is recommended that a light to a medium coat be applied. This coat must be sanded, usually after the sealer has dried an hour or so.
4. Spraying Lacquer: 3 coats of cold lacquer or 2 coats of hot lacquer.	The third and fourth coats of Spraying Lacquer must be good quality gloss or eggshell spraying lacquer. Some operators prefer both coats to be gloss lacquer, the last coat rubbed to a gloss, eggshell or dull finish as desired. Others prefer a coat of gloss lacquer, followed by a coat of eggshell lacquer which dries with a rubbed effect. Still others prefer to use eggshell lacquer for both coats and then on certain work, parts like the sides of a cabinet, can be left eggshell unrubbed. But the more prominent parts that meet the eye can be readily rubbed. Also, it is noted that the sanding operations referred to above are quite generally used but there is no question but that the finish is improved by also sanding the filler coat lightly. The operator, of course, can sand also the third lacquer coat, if desired.
5. Good quality white paste wax.	

Hot lacquers
give a much
heavier finish
and fewer coats
are required
to protect
the wood

Finish for on-the-job Application Brushed on

Products Used	*Remarks*
1. Genuine Silex Paste Wood Filler of shade desired.	Sand the wood thoroughly using 00 or finer sandpaper. Dust off. Use the filler strictly as per directions. Let dry 24 hours. It is not necessary to use wood filler on such close grain woods as Birch or Maple.
2. Three coats of Satinlac.	Apply first coat, steel wool when dry. Apply second coat, steel wool when dry. Apply third coat, steel wool when dry. This produces a full flush finish.
3. Good quality white paste wax.	For a soft attractive sheen, wax with a good quality paste wax.

If blonde or stained effects are desired on either class of work described above, write us. State the tone desired and the wood and we will furnish sample and description.

SPECIAL CONSTRUCTION

Although ¾″ lumber core construction is usually used where veneers are to be flitch selected and made into finished plywood, occasionally it becomes advantageous to have the selected veneers faced to thinner stock, such as ⅜″ 5-ply construction. This is particularly true in a panel treatment for the home, since the flitch selected veneer would assure an absolute sequence match, and at the same time installation would be simplified because the ⅜″ plywood could be nailed and glued to ¼″ x 2½″ plywood furring strips, nailed to studs, eliminating the more costly and difficult jointing associated with full ¾″ thick paneling.

(See page 23 for recommended nailing schedules, etc.)

CONTRACTION, EXPANSION AND MOISTURE CONTROL

This is a difficult subject to discuss since there are so many variables concerned. However, experience has shown that there are several do's and don't's which when followed will assure a quality job.

1. Panels should not be cut immediately upon receipt from the warehouse, but should be allowed to remain in the room long enough to adjust themselves to the temperature and humidity of the work room in which the job is being assembled.

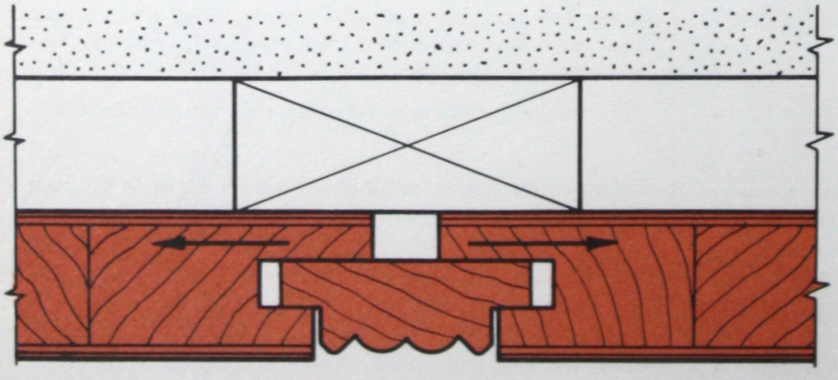
2. During periods of extreme humidity, it is best to wait until the panels have had a chance to dry out before attempting to install them to the wall.

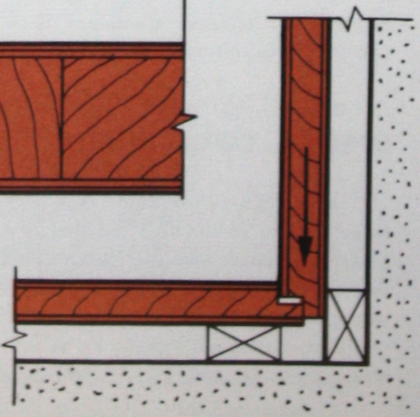
3. Never erect a panel installation over fresh plaster. Wood is hygroscopic and will take on moisture from the plaster.

4. Never stand panels on end against a wall for any length of time. If it is not convenient to lay them flat, they should stand on their sides with care being taken not to chip the edges.

5. To prevent moisture from penetrating through the panel to the face, back prime all panels erected over *exterior* plaster walls with one coat of pure white lead and linseed oil before applying to furring. Avoid getting any of the primer on the face of the panels as this would interfere with finishing of the face.

It is often desired to achieve a completely flush wall treatment, but one of the questions that comes up is "how far can you go with a flush wall before providing an expansion space?" The answer is difficult, since a great deal depends upon the location of the installation, climatically. A good rule to follow, however, is to allow for expansion and contraction every 16′. On a very long expanse of wall this might be a simple beaded spline such as shown in detail below.





This corner detail is often a solution where long runs are encountered.

FIREPROOFING*

Building code authorities throughout the country are becoming more conscious of fire hazards. Codes are being revised and replaced. New methods of construction and new uses for materials are being recognized and accepted. Fire retardant plywood is such a material and has acceptance under practically every known building code in effect today.

The New York City Administrative Building Code has admitted the use of fire retardant pressure treated lumber for over forty years.

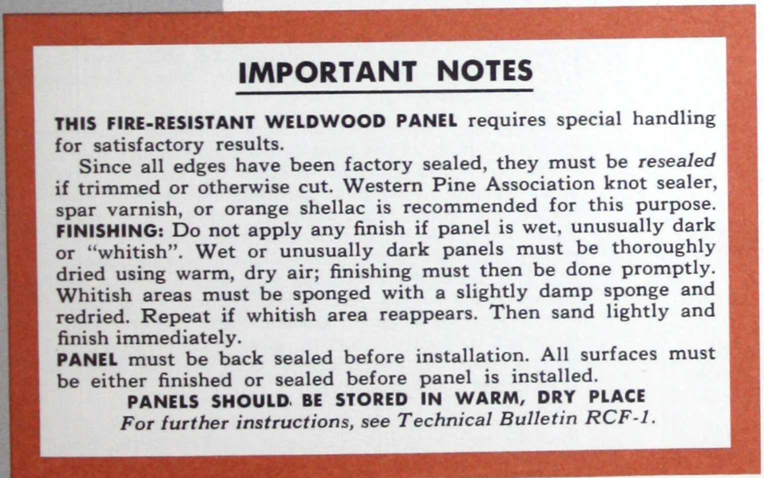
Plywood and lumber can be rendered fire resistant through a vacuum-pressure treatment whereby a combination of salts is impregnated into the cell structure using water as a carrier. Following this processing, the plywood or lumber is then carefully kiln dried. This is necessary to remove all free water. Kiln drying schedules and procedures are necessarily controlled to avoid setting up stresses and eliminating warping and twisting.

There is no restriction regarding the treatment of various thicknesses. The individual veneers may be treated prior to lamination or pre-bonded plywood of any stock thickness may be readily impregnated.

It is important to note that plywood which is to be fireproofed must be of exterior or waterproof grade; otherwise delamination after processing will occur. Interior grades are not suitable for fireproofing.

Salt treated plywood and lumber are slightly more hygroscopic than untreated and should be handled accordingly.

Permanence of treatment is essential. The vacuum-pressure method guarantees complete penetration. The selection of the proper combination of salts is equally essential.



IMPORTANT NOTES

THIS FIRE-RESISTANT WELDWOOD PANEL requires special handling for satisfactory results.

Since all edges have been factory sealed, they must be *resealed* if trimmed or otherwise cut. Western Pine Association knot sealer, spar varnish, or orange shellac is recommended for this purpose.

FINISHING: Do not apply any finish if panel is wet, unusually dark or "whitish". Wet or unusually dark panels must be thoroughly dried using warm, dry air; finishing must then be done promptly. Whitish areas must be sponged with a slightly damp sponge and redried. Repeat if whitish area reappears. Then sand lightly and finish immediately.

PANEL must be back sealed before installation. All surfaces must be either finished or sealed before panel is installed.

PANELS SHOULD BE STORED IN WARM, DRY PLACE

For further instructions, see Technical Bulletin RCF-1.

All of our panels carry a label reading as per this actual size reproduction.

Suggested Specification

Fire retardant plywood. All plywood shall be of an exterior grade. Plywood shall receive a vacuum-pressure treatment, assuring non-corrosiveness and permanent high fire retardance, satisfactorily meeting New York City and National Board of Fire Underwriters' code requirements. All material will be kiln dried after treatment to a moisture content of 10% plus or minus 3%.

For uses in areas where decay and termite infestation prevail, and where Fire Retardant qualities are also desired, the following specification is suggested:

All plywood shall be of an exterior grade. Plywood shall receive a vacuum-pressure treatment, assuring permanency and non-corrosiveness of both toxic and fire retardant chemicals. Toxic chemicals will meet requirements of Specification T2-48 A.W.P.A. Fire Retardant chemicals will meet requirements of the Administration Building Code of the City of New York or Military Specification C-2799 Type H, Class 2, Para, E26, as well as Basic Building Code B.O.C.A.

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*Data by Protexol Corporation, Kenilworth, N. J.

HOW TO SPECIFY JOB

The architect first must decide what type and construction of plywood he desires to use based on the two classifications listed as A, B on Pages 3 and 4. Described below are the correct specifications to be used with these categories.

A — Algoma Grade Stock Panels

Specification form #1 applies. In addition the desired panel thickness and construction desired must be specified in paragraph F, such as:

¾", 5-ply lumber core
¾", 7-ply veneer core
⅜", 5-ply veneer core
¼", 3-ply veneer core
½", 5-ply veneer core

ALGOMA GRADE (Form #1)

Short Specification: Weldwood Plywood shall be Algoma Grade as manufactured by United States Plywood Corporation.

Long Specification: Plywood shall be Algoma Grade, stock panels, as manufactured by United States Plywood Corporation. Faces shall be of one or more pieces of veneer matched for color and grain at the joints to produce continuity of character and balanced design. Faces shall be free of open joints, face depressions, glue stains, or other manufacturing defects. Faces shall be selected for figure, selected for color, or unselected for color, as specified, but shall not contain ruptured grain, doze or shake and shall otherwise equal or exceed the quality requirements of the best grade of that species listed by U. S. Department of Commerce Commercial Standards CS 35-49 or latest revision thereof.

Backs on G1S plywood shall be a species and thickness to balance face veneers and shall be CS 35-49 grade 4 or better.

Plywood shall be sanded both sides and fine belt sanded on the face.

Inner plies shall be sound, with tight joints and of thickness required to produce balanced construction in overall thickness as specified.

Glue bond shall be Urea Formaldehyde hot press method unless otherwise specified.

(F) Plywood thickness shall be as specified with tolerance of plus 0" or minus 1/32" and trimmed to specified sizes plus or minus 1/32".

B — Architectural Grade Stock Sequence Matched Sets

Specification form #2 may be used "as is".
This specifies ¾" lumber core construction.

C — Architectural Grade Custom Veneer Selected

Specification form #2 applies except that paragraph B (noted) is revised to read "Face veneer shall be from flitches to be selected by the architect", or "Face veneer shall be from Flitch Number...... having......square feet and is......feet high @......per square foot obtainable from............Company."

The above would assure ¾" lumber core construction. If it is desired to have the selected veneers described above made up as ⅜" 5-ply construction, paragraph A (noted) should be altered to suit.

ARCHITECTURAL GRADE (Form #2)

Short Specification: Plywood shall be Weldwood Plywood, Architectural Grade, sequence matched, as manufactured by United States Plywood Corporation.

(A) **Long Specification:** Plywood shall be Weldwood Plywood, Architectural Grade as manufactured by United States Plywood Corporation. Unless otherwise specified, plywood shall be 5-ply lumber core construction with an overall thickness of ¾ inches; tolerance: 0" over or 1/32" under. Plywood shall be glued with waterproof phenol formaldehyde resin glue and processed by the hot plate method.

(B) Face veneer shall be from flitches specially selected and approved for architectural adaptation, with respect to cutting lengths, uniformity of color, figure, grain character, or other special requirements.

Faces shall be of one or more pieces of veneer matched for color and grain at the joint to produce balance and continuity of character. Faces shall be selected for figure, selected for color, or unselected for color as specified, but mineral streaks and discolorations, wormholes, ruptured grain, loose texture, doze or shake shall not be admitted. Pieced veneers shall be parallel clipped, jointed by tapeless splicer and edge glued. In matching sliced or sawn veneers unless otherwise specified, pieces shall be bookmatched and of corresponding width on each side of the center joint or adjacent panels. Face veneers shall not contain open joints, face depression, glue stain or other manufacturing irregularities. Back veneers on G1S plywood shall be of species to properly balance face.

Panels shall be sanded both sides, and fine belt sanded on the face side to provide suitable surface for finishing.

Lumber core to consist of Basswood or Poplar strips not to exceed 3½" in width and edge glued under pressure with urea resin glue high frequency cured.

Crossbands shall be 1/16" thick of either Basswood or Poplar unless otherwise specified. Crossbands shall be sound veneer of random widths with edges jointed and glued.

Panels shall be trimmed in width and length to the specified measurement plus or minus 1/32 of an inch unless otherwise specified.

SELECTING CUSTOM VENEERS

The facilities of United States Plywood's New York veneer room are available to architects desiring to make a personal selection of a veneer flitch in a particular wood. Often the architect will specify that a veneer of a given wood, not to exceed a certain amount per square foot cost be submitted. Important information required by the veneer supplier is:

(a) Ceiling height of the job (to establish length of veneer required.)

(b) Approximate square footage involved (so that a flitch can be obtained, containing the footage requirements *plus* an overage in accordance with yield figures for the particular type of cut.)

A great deal of disappointment can be avoided if these facts are established early, so that a flitch with the necessary qualifications can be secured.

"K" Factor

Plywood per se is not an insulating material. Its insulating value is only that of the wood of which it is composed. However, plywood, in construction, has an insulation value about the same as that of 7/16" fiber board insulating material. This is due to the fact that the still air adjacent to the panel has splendid insulating qualities.

THESE SPECIFICATIONS ARE THE SAME AS ON PAGE 36.
TEAR OUT TO INCLUDE WITH SPECIFICATIONS YOU ARE PREPARING

ALGOMA GRADE (Form #1)

Short Specification: Weldwood Plywood shall be Algoma Grade as manufactured by United States Plywood Corporation.

Long Specification: Plywood shall be Algoma Grade, stock panels, as manufactured by United States Plywood Corporation. Faces shall be of one or more pieces of veneer matched for color and grain at the joints to produce continuity of character and balanced design. Faces shall be free of open joints, face depressions, glue stains, or other manufacturing defects. Faces shall be selected for figure, selected for color, or unselected for color, as specified, but shall not contain ruptured grain, doze or shake and shall otherwise equal or exceed the quality requirements of the best grade of that species listed by U. S. Department of Commerce Commercial Standards CS 35-49 or latest revision thereof.

Backs on G1S plywood shall be a species and thickness to balance face veneers and shall be CS 35-49 grade 4 or better.

Plywood shall be sanded both sides and fine belt sanded on the face.

Inner plies shall be sound, with tight joints and of thickness required to produce balanced construction in overall thickness as specified.

Glue bond shall be Urea Formaldehyde hot press method unless otherwise specified.

(F) Plywood thickness shall be as specified with tolerance of plus 0" or minus 1/32" and trimmed to specified sizes plus or minus 1/32".

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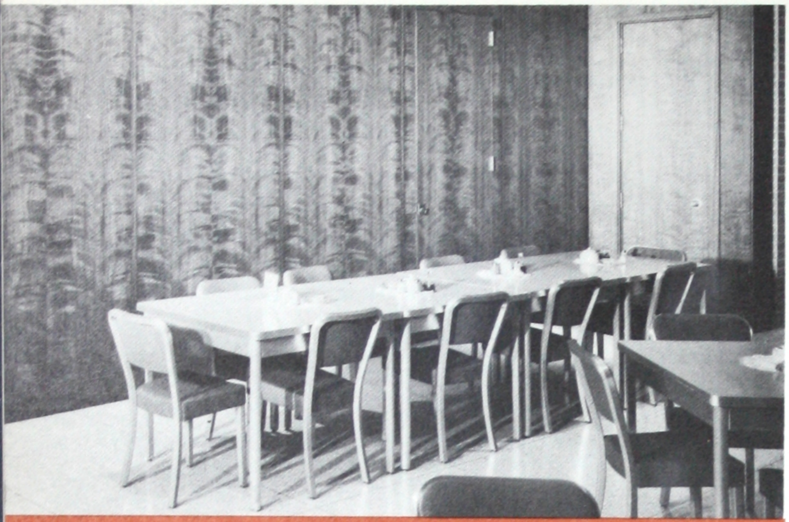
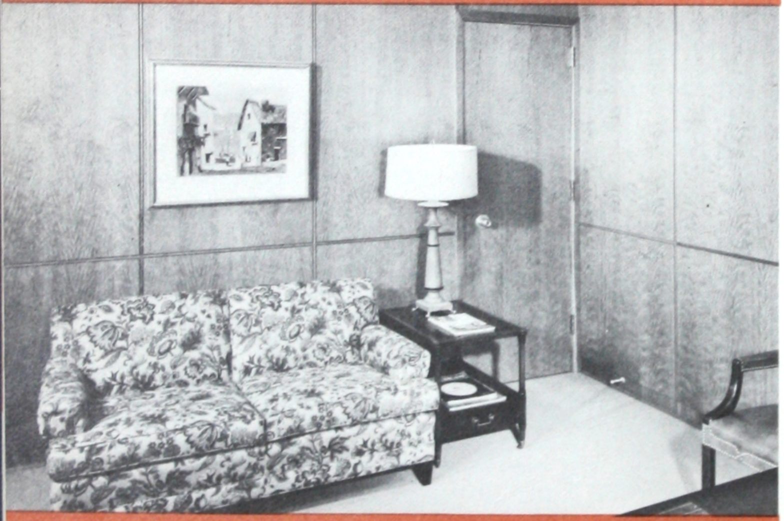
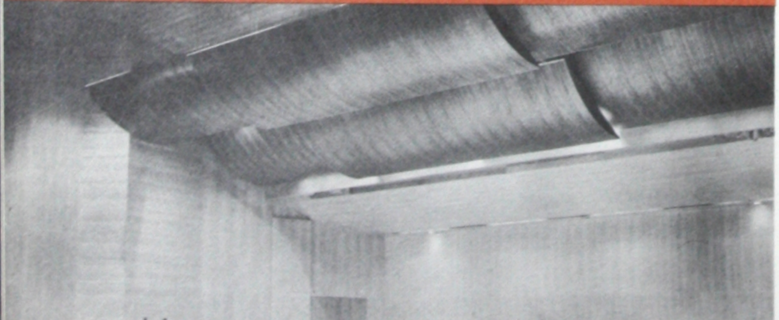
INSTALLATIONS



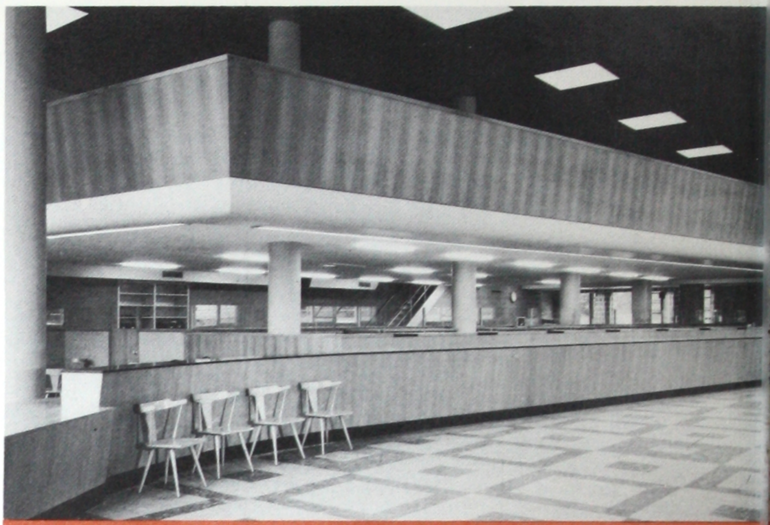
African Cherry Weldwood Plywood cafeteria/auditorium folding wall. • Occidental Life Insurance Co., Raleigh, N. C. Architect: Kemp, Bunch & Jackson Contractor: George W. Kane Millwork: Martin Millwork Co.



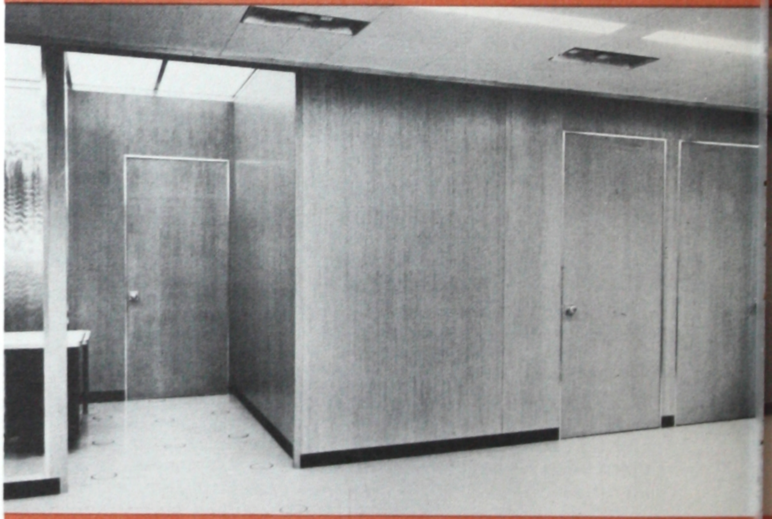
Highly figured Cherry Weldwood Plywood in the office of the Assistant Treasurer • Occidental Life Insurance Co., Raleigh, N. C. Architect: Kemp, Bunch & Jackson Contractor: George W. Kane Millwork: Martin Millwork Co.



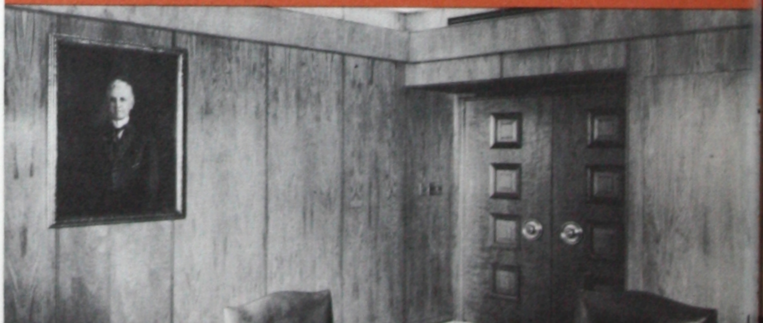
Walls and ceilings are highly figured Korina and the acoustical baffles are figured Paldao • George Rainey Rogers Auditorium Metropolitan Museum of Art, New York City Architect: Voorhees, Walker, Foley & Smith Contractor: George A. Fuller Co.



Walnut Weldwood Plywood tellers counters • First National Bank o Hempstead, Hempstead, L. I. Millwork: Jacob Froehlich Architect Alfred Hopkins and Assoc.



Korina Weldwood Movable Partitions • Ford Motor Company Staf Building, Dearborn, Mich. Architect: Skidmore, Owings & Merrill Distributor: Detroit Partition Co.



Teak Weldwood in the Board of Directors Room • Occidental Life Insurance Co., Raleigh, N. C. Architect: Kemp, Bunch & Jackson Contractor: George W. Kane Millwork: Martin Millwork Co.

DRY BENDING RADII (Minimum Radii)

	LENGTHWISE	CROSSWISE
FIR		
⅛″	15″	8″
¼″	24″	15″
⅜″	54″	36″
½″	8′	6′
⅝″	10′	8′
¾″	12′	10′
BIRCH (All Plies Birch)		
1/16″	7.6″	3.5″
⅛″	13.3″	7.1″
BIRCH (Poplar Core Cross Band)		
1/16″	7.6″	4.1″
⅛″	13.3″	8.3″
¼″	28.0″	20.9″
⅜″	39.6″	34.4″
½″	55″	49″
¾″	79″	72″

MAHOGANY (Poplar Core Cross Band)	LENGTHWISE	CROSSWISE
1/16″	5.9″	4.1″
⅛″	10.2″	8.3″
¼″	21.5″	20.9″
⅜″	30.3″	34.4″
½″	42.2″	49.5″
¾″	60.7″	72.5″
POPLAR (All Plies)		
1/16″	8.9″	4.1″
⅛″	15.4″	8.3″
¼″	32.4″	20.9″
⅜″	45.8″	34.1″
½″	63.8″	49.5″
¾″	43.5″	72″

Chart Showing Construction of Weldwood Plywood Available In Various Woods

WOODS	VENEER CONSTRUCTION							LUMBER CORE	ARCH. SEQ MATCHED SE
	⅛″—3 PLY	¼″—3 PLY	5/16″—3 PLY	⅜″—5 PLY	½″—5 PLY	⅝″—5 PLY	¾″—7 PLY	¾″—5 PLY	¾″—5 PLY
AVODIRE		●						●	●
AVODIRE, FIG.									●
BIRCH	●	●		●	●		●	●	
BIRCH, CURLY		●						●	
BIRCH, RED		●							
BIRCH, WHITE		●						●	
CEDAR, AROMATIC		●							
CHERRY		●					●	●	●
ELM		●							
KORINA	●	●		●			●	●	●
MAHOGANY, RIBBON — STRIPED AFRICAN	●	●		●	●		●	●	
MAHOGANY, RIBBON — STRIPED PHILIPPINE		●					●		
MAHOGANY ROTARY CUT PHILIPPINE		●		●			● 5 PLY		
MAHOGANY, QUARTERED SLICED FIGURED								●	●
MAHOGANY, FIG.									●
MAHOGANY, MOT.									●
MAHOGANY, MOTTLED FIGURED									●
MAPLE, BIRD'S-EYE		●						●	
MAPLE, CURLY		●							
MAPLE, WHITE		●		●			●	●	
NAKORA		●					●	●	
OAK, PLAIN RED		●		●	●		●		
OAK, PL. SL. WHITE	●	●		●	●		●	●	
OAK, RIFT WHITE	●	●		●	●		●	●	
PINE, KNOTTY		●					●		
PRIMA VERA	●	●					●	●	●
ROSEWOOD, BRAZ.									●
WALNUT, FIG.									●
WALNUT, QTD.	●	●					●	●	●
WALNUT, SL.	●	●		●	●		●	●	●
WELDTEX, FIR			●						
WELDTEX, GUM			●						

SHOWROOMS

ALBANY, N. Y.	Fuller Road
ALLENTOWN, PA	1302-10 N. Sherman St.
ATLANTA, GA	1460 Ellsworth Drive, N.W.
AUGUSTA, GEORGIA	1545—15th Avenue
AUSTIN, TEX	701 So. Lamar St.
BALTIMORE, MD	2020 Mosher St.
BEAUMONT, TEX	1701 Laurel St.
BIRMINGHAM, ALA	1230 Second Ave. South
BOSTON, MASS	3890 Mystic Valley Parkway, Medford
BRISTOL, TENN	928 State Street
BROOKLYN, N. Y	89-17 Union Turnpike
BUFFALO, N. Y	300 Greene St.
CHARLESTON, S. C	44 Line St.
CHARLOTTE, N. C	1026 Jay Street
CHATTANOOGA, TENN	1500 E. 38th St.
CHICAGO, ILL	6450 W. Cortland St.
CHICAGO, ILL. (Burnside Branch)	9633 Cottage Grove Ave.
CHICOUTIMI, QUE	*Weldwood Plywood Limited* 293 Boulevard Lamarche East
CINCINNATI, O	6225 Wiehe Road
CLEVELAND, O	10801 Broadway Ave.
COLUMBIA, S. C	Laurel & Huger Sts.
COLUMBUS, O	925 Burrell Ave.
CORPUS CHRISTI, TEX	433-435 Leary St.
CULVER CITY, CALIF	3571 Hayden Ave.
DALLAS, TEX	8650 Denton Drive
DECATUR, ILL	2165 North Lowber St.
DENVER, COLO	4511 East 46th Ave.
DETROIT, MICH	6845 Dix Ave.
EVANSVILLE, INDIANA	101 No. Elliott
FT. WORTH, TEX	3008 Stuart Drive
FRESNO, CALIF	1626 S. Pearl St.
GLENDALE (LOS ANGELES 39), CALIF	4921 San Fernando Rd., West
GRAND RAPIDS, MICH	3415 Eastern Ave., S. E.
GREENVILLE, S. C	Corner of Weldwood & Rutherford Rds.
HARLINGEN, TEX	1022 W. Van Buren St.
HARRISBURG, PA	3307 N. 6th St.
HARTFORD, CONN	580 Tolland St.
HIGH POINT, N. C	Prospect St. at Sou. Rwy.
HOUSTON, TEX	330 S. 66th St.
INDIANAPOLIS, IND	1828 English Ave.
JACKSON, MISS	126 W. Mays St.
JACKSONVILLE, FLA	603 East 8th St.
KANSAS CITY, KAN	2935 Chrysler Rd.
KNOXVILLE, TENN	2734 Middlebrook Pike, N.W.
LITTLE ROCK, ARK	419 Industrial St.
LONDON, ONT., CANADA	*Weldwood Plywood Limited*, 539 First St.
LOS ANGELES, CALIF	4480 Pacific Blvd.
LOUISVILLE, KY	358 Farmington Ave.
LUBBOCK, TEX	2030 Avenue C
MEMPHIS, TENN	46 Flicker
MIAMI, FLA	3545 N.W. 71st St.
MILWAUKEE, WIS	3354 N. 35th St.
MONTGOMERY, ALA	1937 Mobile Road
MONTREAL, P. Q	*Weldwood Plywood Limited*, 395 Stinson Blvd.
NASHVILLE, TENN	2507 Charlotte Ave.
NEWARK, N. J	135 Avenue I
NEW HYDE PARK, N. Y	101 Nassau Terminal Rd.
NEW ORLEANS, LA	887 Race St.
NEW YORK, N. Y	806 E. 144th St.
NORFOLK, VA	1412 Ballantine Blvd.
OAKLAND, CALIF	330 Brush St.
OKLAHOMA CITY, OKLA	4608 N. Cooper St.
OMAHA, NEB	4450 Commercial Ave.
ORLANDO, FLA	140 West Miller
OTTAWA, ONT., CANADA	*Weldwood Plywood Limited* 2418 Weldwood Road
PHILADELPHIA, PA	1717 N. Delaware Ave.
PHOENIX, ARIZ	1323 North 22nd Ave.
PITTSBURGH, PA	860 Pennsylvania Ave.
PITTSTON, PA	Tunkhannock & Packer Aves.
PORTLAND, ORE	3333 N.W. Front Ave.
PROVIDENCE, R. I	Patton Road, Rumford
QUEBEC CITY, QUE., CANADA	*Weldwood Plywood Limited* Dumas & Joly Sts.
RALEIGH, N. C	Old Wake Forest Road
RICHMOND, VA	707 E. 7th St.
ROANOKE, VA	2502 Patterson Ave., S.W.
ROCHESTER, N. Y	1965 East Avenue
SACRAMENTO, CALIF	5914 R. Street
SAGINAW, MICH	1901 Rust Ave.
ST. LOUIS, MO	4268 Utah St.
ST. PAUL, MINN	2550 Wabash Ave.
ST. PETERSBURG, FLA	2720—23rd St., North
SALT LAKE CITY, UTAH	774 South 4th West St
SAN ANTONIO, TEX	435 Seguin St
SAN DIEGO, CALIF	1346 S. 28th St. at Harbor Drive
SAN FRANCISCO, CALIF	1100 Army St.
SANTA ANA, CALIF	1124 East 17th St.
SANTA CLARA, CALIF	570 Martin Ave.
SAVANNAH, GA	100 Aberdeen St.
SEATTLE, WASH	13th & West Nickerson Sts.
SHERBROOKE, QUE	*Weldwood Plywood Limited*, 965 Cabana St.
SHREVEPORT, LA	6128 Linwood Ave.
SPOKANE, WASH	E. 3508 Riverside Ave.
SPRINGFIELD, MO	427 N. Fremont
SUDBURY, ONT	*Weldwood Plywood Limited*, 180 Barry Downe Rd.
SYRACUSE, N. Y	Deere Road—Industrial Park, E. Syracuse
TALLAHASSEE, FLA	717 South Woodward Ave.
TAMPA, FLA	505 N. Rome Ave.
TOLEDO, OHIO	1661 Campbell Ave.
TORONTO 14, ONT	*Weldwood Plywood Limited*, 55 Plywood Pl.
TULSA, OKLA	6544 East 12th
TYLER, TEX	727 No. Fleishel St.
WASHINGTON, D. C	2142 Queens Chapel Rd. N.E.
WICHITA, KAN	600 Commerce St.
WINNIPEG, MANITOBA	*Weldwood Plywood Limited*, 750 Berry St.
YOUNGSTOWN, OHIO	499 N. Meridian Rd.

UNITED STATES PLYWOOD CORPORATION

World's Largest Plywood Organization

EXECUTIVE OFFICES: WELDWOOD BUILDING
55 WEST 44th STREET, NEW YORK 36, N. Y.

In Canada: Weldwood Plywood Limited

Manufacturers and Distributors of

- **Weldwood* Hardwood Plywood**
- **Douglas Fir Weldwood**
- **Weldwood Duraply***
- **Old Craftsman Pine Weldwood***
- **Plankweld***
- **Novoply***
- **Weldwood Flush Doors**
- **Weldwood Fire Doors**
- **Armorply* (sandwich laminates)**
- **Weldwood Movable Partitions**
- **Prefinished Weldwood Panels**
- **Surfwood* and Sea Swirl**
- **Weldwood* Chalkboard**
- **Weldwood* Tackboard**
- **Weldwood Porc-Lin-Ply***
- **Weldtex* (striated plywood)**
- **Westinghouse Micarta***
- **Kalistron***
- **Flexwood***
- **Weldwood Glue and other Weldwood adhesives**
- **Firzite* and Satinlac***

*Reg. U.S. Pat. Off

Form No. 1034D-5705 Litho in U.S.A.